JUNE 2, 1949

Paper TRADE JOURNAL

PUBLISHED WEEKLY

WOOD PULP

G

Established 1886

"Study the past if you would divine the future."
— CONFUCIUS

The skill, resourcefulness and determination that have made Pulp and Paper one of the nation's great industries, will continue to develop new products and new markets . . . to increase ever more the invaluable role Paper plays in every phase of American life.

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— INCORPORATED —
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No matter what you want to make, whether it be paper, board, insulating board, or structural hard board, Downingtown designs and builds the machinery, supplying all the accessory equipment to meet your requirements "to a T." You can feel assured of the desired daily tonnage of the required quality with a minimum capital investment.

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If your plans are for a new mill, or modernization to produce the quality sheet demanded by your customers at a profitable operating speed, the integrity of Downingtown will provide satisfaction "to a T," from the signing of the contract to the start-up. Call on us.

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DOWNINGTOWN, PA.

DESIGNERS AND BUILDERS OF PAPER MAKING MACHINERY SINCE 1880

AL Stainless Steel Castings meet any need for Cleanliness

Data on the Uses of ALLEGHENY METAL in Various Industries

Available *now*—informative booklets on Allegheny Metal in the Chemical, Petroleum Refining, Brewing, Meat Packing, and Dairy Industries—others in preparation. Write for this valuable data on the field in which you are interested.

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Note the clean, sound, fine-grained appearance of the Allegheny Metal sanitary fittings shown above, in the "as-cast" condition. They're typical of the wide variety of stainless steel castings we produce for the chemical processing, food, dairy, beverage, oil, paper and textile industries, etc.—wherever the purity and quality of products must be maintained, and where ease of sanitation and assurance of long, trouble-free service are prime considerations.

Allegheny Metal castings are produced by methods specially developed to protect uniform quality and guard against defects. You'll find them superior both from the standpoint of machinability and soundness. ● Let us quote on your stainless casting requirements—any shape and any size, from a few ounces to 5000 pounds.

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Pittsburgh, Pa.

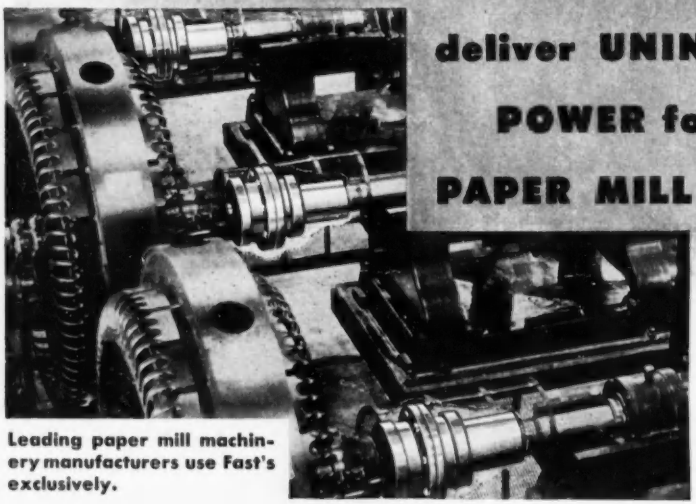
Nation's Leading Producer of Stainless Steels in All Forms

AL

W&D 2451

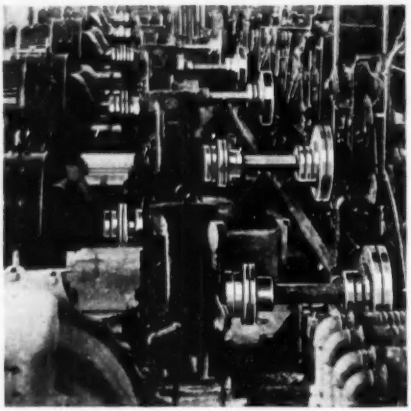
ALLEGHENY METAL is stocked by all Joseph T. Ryerson & Son, Inc. warehouses

Here's How FAST'S COUPLINGS deliver UNINTERRUPTED POWER for all your PAPER MILL EQUIPMENT



Leading paper mill machinery manufacturers use Fast's exclusively.

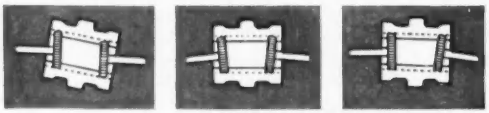
FOR JORDAN ADJUSTMENTS: Fast's Jordan-Type Couplings reduce wear on bearings, prolong life of motor and Jordan. Because Fast's splines are always meshed in oil, plug adjustment is smooth and certain. No worn spots can develop—customary "hard spot" is eliminated. Due to smooth torque and elimination of coupling vibration, Jordan life is increased and product discharged from Jordan is uniform.



AND FOR REMOTE DRIVES: Fast's Floating Shaft Couplings enable drives to be *set back* from paper machines without the use of supporting bearings. This eliminates additional bearings, does away with impossible task of keeping three or more bearings in line. It saves you installation cost, upkeep and bearing replacement. These Couplings have been in service since 1926!

NO MATTER what your mill coupling problem may be, there's a Fast's made to solve it and give you longer machine life, lower upkeep costs and minimum shutdown losses. For absolute dependability, specify these original gear-type couplings with *exclusive* "rocking bearing." The *only* coupling which provides a *positive* metal-to-metal seal that keeps moisture, dust and grit *on the outside!*

This exclusive "rocking bearing" is also *correctly engineered* to allow freedom of movement to compensate for misalignment because *spherical* base has *same axis* as the hub spline faces. And Fast's Couplings give you the benefits of years of top engineering experience and unexcelled service, including available parts if required by change of drive, *even if your Fast's have been running for 30 years.* Get full information—check the coupon and mail today to: Koppers Co., Inc., Fast's Coupling Dept., 236 Scott Street, Baltimore 3, Md.



Compensate for All Misalignment

The floating sleeve takes a neutral position. All forms of misalignment are compensated for between the lubricated faces of the splines, equally divided between driving and driven members. The entire assembly revolves as one unit. The above exaggerated diagrams demonstrate Fast's principle.

FAST'S KOPPERS
Self-Aligning
COUPLINGS

SEND FOR FREE CATALOG!

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236 Scott St., Baltimore 3, Md.

Please send me your illustrated, informative catalog, giving full information on the many types of Fast's Couplings.

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Company .....
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City ..... Zone ..... State .....

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MEMBER

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Paper TRADE JOURNAL

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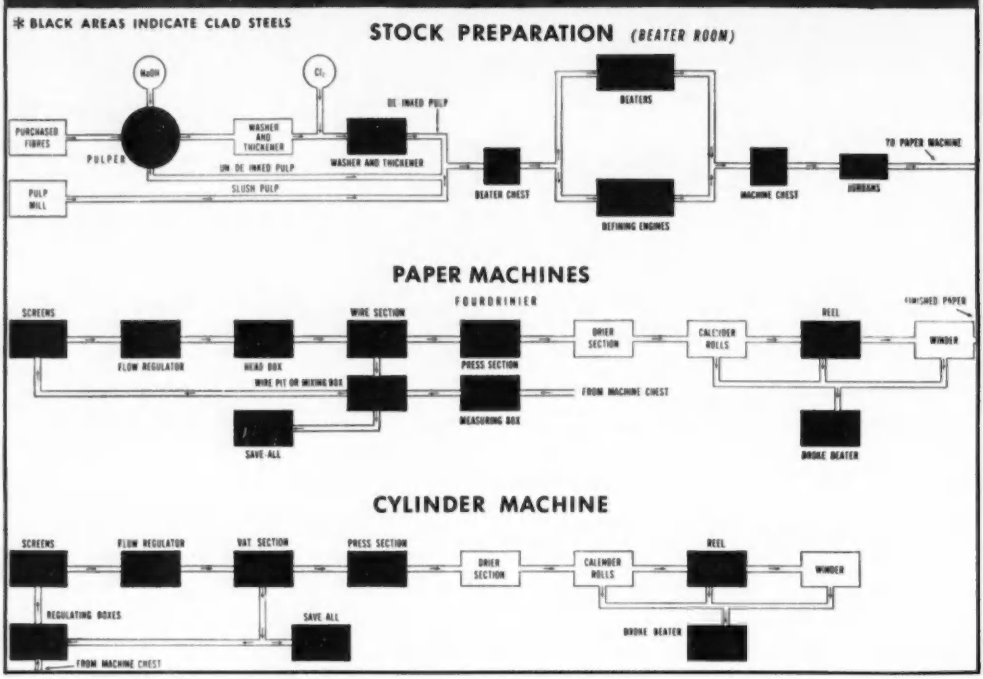
Applications for *Clad Steels** in Paper Making



Protection of equipment against corrosive attack, *protection* of contents against discoloration and metallic contamination—Lukens Clad Steels are performing these services throughout the Pulp and Paper Industry. They are available as Nickel-Clad, Stainless-Clad, Inconel-Clad and Monel-Clad Steels.

Manufacturers of pulp and paper mill machinery are familiar with their advantages; many have standardized on Lukens Clad Steels wherever corrosion is encountered. Many paper mill engineers specify them when drawing up plans for new plants.

The new Bulletin 470 illustrates typical applications. For a copy and for other help on corrosion problems, write Lukens Steel Company, 403 Lukens Building, Coatesville, Pa.

CLAD METAL STEEL

LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

TRENDS

Office of the PAPER TRADE JOURNAL, Wednesday, June 1, 1949.

Wood Pulp

From the doorsteps of market pulp traders, outlook for an early pickup in mill buying is bleak. There are none who can see a revival of interest in buying *at any price* until after seasonal shutdowns in July. And while crystallization of the "sunny" predictions for June and July pickups voiced by other segments of the industry, would be welcome, seasoned traders mention August or September, depending on the size of mill inventories and general business conditions.

Obviously this is not the occasion for rushing in to announce third quarter price levels. Since the mills will expect price cuts to become effective on their hand-to-mouth purchases that must tide over till vacations, early posting of prices is seen only as an unprofitable jog downhill. Also it will serve to start U.S., Swedish, Canadian, Finnish, and Norwegian producers jockeying for position again.

Such positioning is likely to be in that general order, it is believed, with U.S. producers setting the pace, the Swedes moving down closely to hold present positions, the Canadians reluctantly cutting again to relative levels, the Finns meeting Canadian prices, and the Norwegians trailing independently into strategic spots.

Rumors of the past weeks are gathering sufficient weight for it to be assumed that a West Coast producer is about to announce a $6 to $8 cut in his bleached sulfite price.

Softening of bleached kraft is reported to be fairly general. Earliest confirmation of this came today with Brown Company's announcement that, effective immediately, bleached kraft is slashed $10 a ton to $130. Unbleached kraft (Canadian) also is affected by the cut, and is now priced at $95, $12.50 maximum transportation allowance on both grades.

Under existing market conditions, announcements from leading Swedish producers, expected on or about June 1, are deferred.

Newsprint

Rising stocks of newsprint at U.S. publishers are giving Canadian producers the jitters as they also study reports on general business conditions and eye their own increasing capacity. Should the "period of readjustment" prove to be a recession, advertising linage is not likely to hold to the volume required to support a buyers' market. To the contrary, it could slump badly, newsprint stocks would amass, and the price level would take the same shaking up as has the rest of the paper market.

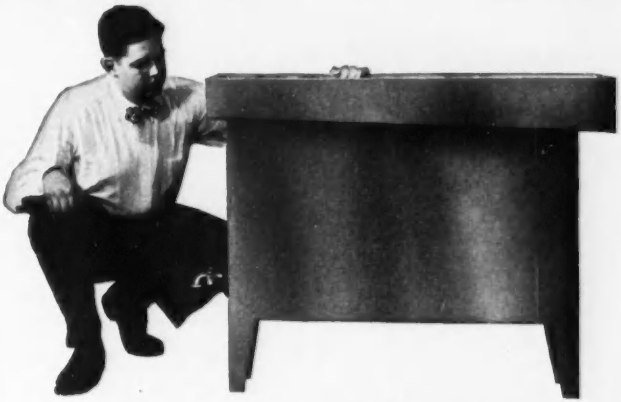
Item in May 25 edition of ANPA bulletin is headed "Canada Watches Demand as Related to Newsprint Price," and quotes Quebec dispatch.

(Continued on page 9)

For Industrial And Municipal Water Treatment Plants

Alhydro FLOC PRODUCER

saves money 3 ways for WATER PLANT OPERATORS



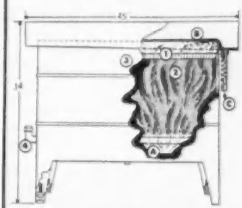
SMALL, COMPACT . . . yet one unit treats an average of 300,000 gallons per day. Can be installed singly or in multiples. Produces floc by electrolytic decomposition of aluminum plates.

SAVES ON CHEMICAL STORAGE PROBLEMS—in nearly every case, low-voltage direct current and aluminum plates are the only materials required to operate the Alhydro Floc Producer. Therefore, little storage space is required and there is no need at all for coagulant feeders.

SAVES ON FREIGHT AND HANDLING—since 69 lbs. of the easily replaceable aluminum plates treat nearly as much water as ¾ ton of ordinary coagulants, freight and handling costs dwindle to a minimum.

SAVES ON MAINTENANCE—the Alhydro unit requires only intermittent attention by one operator who controls the concentrations of aluminum hydroxide floc simply by setting the current volume.

. . . HERE'S HOW THE ALHYDRO FLOC PRODUCER OPERATES



1. Connector Bar on each side of tank.
2. Alternate Stainless Steel and Aluminum Plates.
3. Composition Rubber-Lined Stainless Steel Tank.
4. Water Feed Line easily removed for inspection.
   a. Water enters tank through slots in feed pipe.
   b. Concentrated floc is carried to top and leaves through discharge trough.
   c. Discharge pipe feeds floc to raw water.

Write for Free Folder

See how Alhydro can save money by simplifying the treatment of water for drinking or industrial use. Write for your free copy today.

ALHYDRO, INC. DEPARTMENT 6C 516 N. CHARLES ST., BALTIMORE 1, MD.

NEW ARMSTRONG *Individual Dryer* TEMPERATURE CONTROL

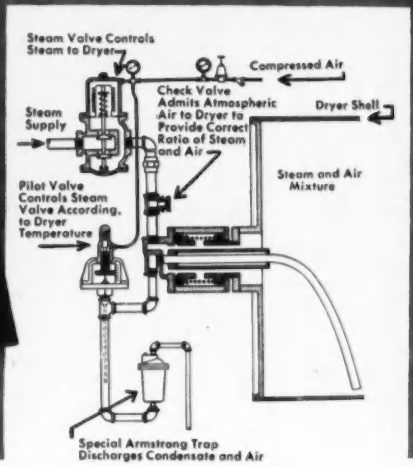
Keeps Wet End Dryers "Cool"

Prevents Sheet from Sticking and Curling

Controls Each Dryer Independently

Maintains Any Temperature from 100° to 250° F

Positive—Dependable—Guaranteed


Steam Valve Controls Steam to Dryer
Compressed Air
Check Valve Admits Atmospheric Air to Dryer to Provide Correct Ratio of Steam and Air
Steam Supply
Dryer Shell
Steam and Air Mixture
Pilot Valve Controls Steam Valve According to Dryer Temperature
Special Armstrong Trap Discharges Condensate and Air

Armstrong Individual Dryer Temperature Controls on the wet end of a paper machine make it possible to increase the sheet temperature as slowly as required for good drying. The temperature of the first dryer can be set at say 140° F, and that of the succeeding dryers at 160°, 180°, 200°, and 220° or whatever setting may be required for drying a particular sheet.

Thus, we have a positive, dependable answer to an old drying problem: maintenance of relatively cool wet-end dryers to prevent the sheet from sticking to the dryer surface, and to avoid curl or cockle due to over-drying on one side.

These controls are also used after the size press. Not only are the non-picking, non-curling advantages secured, but here fairly constant control of moisture content is also secured.

For complete information on this proved method of improving paper drying, write for BULLETIN 187.

Reduced Temperatures Secured by Controlled Mixture of Steam and Air

When steam and air are mixed at atmospheric pressure, the temperature of the mixture will be that corresponding to the partial pressure due to the steam. For example, if the partial pressure of the mixture due to steam is 3.7 lbs. absolute, the temperature will be 150° F. The Armstrong Control diagrammed above automatically controls the ratio of steam and air to maintain accurately the temperature for which it is set. If the temperature of the dryer tends to rise, the pilot valve bleeds compressed air to release pressure on the steam valve bellows, causing it to throttle. A decrease in temperature causes a reverse action. Atmospheric air for the mixture enters through the check valve when the condensing rate of the dryer causes pressure to drop below atmospheric. When temperatures above 212° F are desired, the check valve stays closed, no air enters and steam pressure is raised to the required point.

ARMSTRONG MACHINE WORKS

818 Hoffman Street, Three Rivers, Michigan

INVERTED BUCKET STEAM TRAPS • PAPER MILL SPECIALTIES

TRENDS

(Continued from page 7)

"The U.S. advertising picture brought cheer to Canadian newsprint firms this week when they learned that linage across the border was over 3 percent ahead of the first quarter last year. Canadian newsprint men were somewhat worried over the fact that advertising linage had shown only a very small increase, around 1 percent for the first two months of the year, with February's figures lower than those for the same month in 1948. Another factor of worry was the fact that newsprint inventories in the hands of publishers and mills were building up rapidly with a sharp drop in linage spelling trouble for the newsprint industry. . . . Now, however, with advertising up, manufacturers are breathing a collective sigh of relief, although the steady increase in inventories still worries the Canadian industry. The fear always exists that supply will catch up with demand; and when this occurs it will probably start a downward swing in price."

End of April stocks in the hands of U.S. consumers and mills were 695,647 short tons, compared with 527,789 in April, 1948, a gain of 167,858 tons, the Newsprint Ass'n. of Canada reports. Canadian production (now includes Newfoundland) for the year to date shows a gain of 122,083 tons, or 7.6 percent; U.S. a gain of 27,999 tons or 10.4 percent, for a total Continental gain of 150,082 tons. U.S. imports from Europe during the same period gained 41,887 tons or 54.6 percent.

With supply and demand running a close race, the newsprint industry now comes in for its share of production adjustments. Spot prices are close to contract levels, lower in distress cases. Thus the incentive to speculation is gone, and high cost marginal mills will be removed from production. Easing of demand for side rolls is reported. Mills are not quite abreast of demand for standard sizes from their contract customers, it is stated. Price is likely to be firm and steady if advertising linage holds or gains.

Paperboard Prices

Easier tone of market indicated as Filled News firmed at $70, Plain Chip, Kraft Liners 42#, and Kraft Corr. .009 dropped $5.00 a ton.

Export Trade

Colombia—A strong demand for various grades of paper is said to exist in Colombia. Table I shows types imported from U. S. which constitute Group I of the Colombian three-group import licensing system. Largest percentage of available dollar exchange is ear-marked for these articles, although any import license is difficult to obtain because of the critical dollar shortage.

Import licenses for Group II papers: ruled and cross-section paper; velvety, wallpaper and tissue paper; are extremely difficult to obtain at present.

Import licenses are granted in accordance with basic quota system which allows established importers quotas based on their previous imports. Because of strict controls, it is estimated that imports of paper during 1949 will approximate 70 percent of 1946's total of 26,253 metric tons.

Table I
Colombian U. S. Imports
Types of Paper

Newsprint (one color)
Toilet tissue
Wrapping (one color) cellophane, glassine and kraft
Glazed newsprint, writing and drawing, enameled paper
Blotting paper
Waxed wrapping, fibre reinforced wrapping
Bristol board, bank check, stamped decorated
Varnished paper
Gummed paper
Carbon and indigo, calcemania, crepe, drawing (for plans and drawings), tracing and blue print paper

The Exchange Control is trying to liquidate a considerable backlog of payments owing to U. S. exporters. Not all payments are delayed, but the only certain way to receive immediate payment is said to be by insisting on an irrevocable letter of credit being opened in a U. S. bank which is payable on presentation of shipping documents.

Steady income in dollars from coffee exports is not sufficient to cover current demand for imports. Strict regulations have as their purpose limitation of imports to those goods essential to national economy. Extreme dollar shortage and consequent backlog in dollar remittances is receiving Government attention, and the situation, at least in regard to unpaid commercial debts to U. S. exporters, may be alleviated within the next four or six months, the U. S. Embassy at Bogota reports.

Indexes

Index of general business activity for the week ended May 21 eased to 144.1 from 145.4 in the preceding week, compared with 150.7 in the corresponding week of 1948. Index of paperboard production dropped to 166.6 from 174.6 in the preceding week, compared with 197.0 in the corresponding week of 1948.

Comparative ratios of U.S. paper and paperboard production to mill capacity, as reported by AP&PA are:

	May 21 1949	May 14 1949	May 22 1948	May 23 1947	May 24 1946
Paper**	79.5	‡82.4	100.3	105.1	99.2
Paperboard	77.0	79.0	100.0	101.0	93.0

** Capacity in tons: 180,016; 1948, 178,791.
‡ Revised.

Paperboard Production (Tons)

	May 21 1949	May 14 1949	May 22 1948
Production	161,307	166,639	189,359
New Orders	140,189	147,537	170,701
Unfilled Orders	248,992	271,723	363,959

Percent of Activity, Current 77%; Year, 82%.

HUNTING FOR GLYCERINE?

Armour has it as close as your phone. Just call the nearest of Armour's 332 convenient stock points for all grades. Quick delivery keeps your inventories low.

ARMOUR *Glycerine Division*

Armour and Co., 1355 W. 31st St., Chicago 9, Ill.

Building

FOR THE PAPER INDUSTRY

We design, build, and equip paper and pulp mills . . . steam generating plants . . . and facilities for eliminating stream pollution.

Under one contract and one responsibility, we deliver jobs complete, ready for operation.

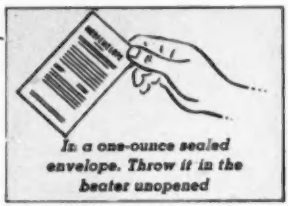
We also furnish engineering reports and surveys. Current cost data available at all offices.

The H.K. Ferguson Co.
INDUSTRIAL ENGINEERS AND BUILDERS

THE FERGUSON BUILDING • CLEVELAND, OHIO
OFFICES IN NEW YORK, HOUSTON, CHICAGO, CINCINNATI AND LOS ANGELES

Merfenelopes

FOR SLIME CONTROL



In a one-ounce sealed envelope. Throw it in the beater unopened

Cleans Pipes
Kills Bacteria
Reduces Washups
Fewer Slime Rejects

R. T. VANDERBILT CO., INC.
230 Park Avenue, New York City

Paper TRADE JOURNAL

JUNE 2, 1949

VOL. 128, NO. 22

GOVERNMENT . . .

Census of Manufactures Paper and Allied Products Preliminary Figures

WASHINGTON — Preliminary figures for the 1947 Census of Manufactures were released on May 27 for the paper industry in the Middle Atlantic, East North Central, East South Central and Pacific Coast states. The figures relate to "paper and allied products."

For the *Middle Atlantic group—New York, New Jersey, Pennsylvania*—the figures showed 1,550 manufacturing establishments in 1947, with an average of 121,600 employes for the year, having total salaries and wages for the year of $346,800,000, while of the total, 104,800 were production workers having a wage total of $287,600,000. Value added by manufacture (cost of materials and value of shipments to be reported later) totaled $733,900,000.

A. B. WILLIAMS

—appointed sales manager of the Vancouver, Wash. plant of the Bemis Paper Bag Co., manufacturer of multiwall paper shipping sacks and a subsidiary of Bemis Bro. Bag Co., St. Louis.

For 1939, 1,242 establishments were reported, with 74,400 production workers while value added by manufacture totaled $246,100,000.

For *New York* state the 1947 figures showed 936 establishments, having an average of 65,000 employes for the year, with salaries and wages totaling $183,700,000; of these 55,800 were production workers having wages totaling $141,200,000. Value added by manufacture amounted to $373,600,000; this compared with 777 establishments in 1939, having 40,600 production workers; values for the pre-war year added by manufacture total $128,500,000.

For *New Jersey*, there were 243 establishments in 1947, with 21,300 workers, drawing wages and salaries totaling $66,700,000, of which 18,100 were production workers having wages totaling $49,700,000. Value added by manufacture amounted to $154,600,000. This compared with 165 establishments in 1939, with 12,100 production workers, and $43,900,000 added by manufacture.

For *Pennsylvania* in 1947, the figures showed 371 establishments, 35,300 employes having salaries and wages for the year of $96,300,000, of whom 30,900 were production workers with wages totaling $76,600,000. Value added by manufacture amounted to $205,800,000. This compared with 300 establishments in 1939; 21,700 production workers, and $73,700,000 added by manufacture.

For the *East North Central States—Illinois, Ohio, Michigan, Indiana, Wisconsin*—paper and paper products establishments totaled 978 in 1947, with employes numbering 122,100, having salaries and wages totaling $362,300,000; of these, 106,000 were production workers having wages totaling $287,400,000; value added by manufacture totaled $776,100,000. This compared with 790 establishments in 1939, and value added by manufacture amounting to $257,100,000.

For *Ohio*, the figures showed 228 plants in 1947, having an average of 31,700 employes, and total wages and salaries of $93,900,000; of these 27,300 were production workers drawing $74,000,000. Value added by manufacture amounted to $199,100,000. This compared with 197 establishments in 1939, with 19,100 production workers, and value added by manufacture amounting to $61,100,000.

For *Indiana*, 78 establishments were shown for 1947, having 9,000 employes and total salaries and wages of $24,400,000; of these 7,600 were production workers having $18,500,000 in wages for the year; value added by manufacture totaled $55,800,000. This compared with 76 establishments in 1939, with 5,600 production workers, and $16,600,000 added by manufacture.

For *Illinois*, 343 establishments were shown for 1947, having 28,100 employes, total salaries and wages of $79,500,000; of these 23,700 were production workers having wages of $59,300,000. Value added by manufacture was $158,100,000. This compares with 245 establishments in 1939; 16,800 production workers, and $58,300,000 added by manufacture.

For *Michigan*, 160 establishments were shown for 1947, having 26,000 employes and wages and salary totaling $82,500,000; of these 23,100 were production workers having wages totaling $70,200,000. Value added by manufacture was $174,300,000. This compared with 133 establishments in

(Continued on page 12)

LIONEL M. GOLDBERG

—vice-president and a director of the National Container Corp. in charge of the Long Island City plant, has been elected comptroller and assistant treasurer of the company. He joined National Container in 1928.

GOVERNMENT

(Continued from page 11)

1939; 19,000 workers, and $58,700,000 added by manufacture.

For *Michigan*, 160 establishments were shown for 1947, having 28,100 employes; salaries and wages totaling $81,900,000; of these 24,300 were production workers with wages totaling $65,400,000. Value added by manufacture was $188,700,000. This compared with 139 establishments in 1939; 17,700 production workers, and $62,500,000 added by manufacture.

The *East South Central States—Kentucky, Tennessee, Alabama, Mississippi*—showed in the case of Mississippi, the greatest industrial gain for 1947 compared with 1939 was in paper and allied products. The figures showed for the area as a whole, 86 establishments with 16,100 employes having salaries and wages totaling $41,500,000; of these 14,300 were production workers with wages totaling $34,000,000. Value added by manufacture was $116,900,000. This compared with 62 establishments for 1939, with 8,600 production workers, and $22,500,000 added by manufacture.

Kentucky showed 12 establishments for 1947, having 700 workers, with salaries and wages of $2,200,000; of these 600 were production workers with $1,400,000 in wages for the year. Value added by manufacture totaled $4,700,000. This compared with 11 establishments in 1939, 400 production workers, and $1,300,000 added in value by manufacture.

Tennessee in 1947 had 42 establishments and 4,800 workers with salaries and wages totaling $11,800,000; of these 4,100 were production workers with wages totaling $9,000,000. Value added by manufacture was $35,800,000. For 1939, there were 33 establishments, 2,500 production workers, while value added by manufacture amounted to $8,200,000.

In *Alabama*, 21 establishments were reported for the year, with 5,700 workers, having salaries and wages totaling $12,400,000; value added by manufacture was $39,900,000. For 1939, twelve establishments were shown, having 3,100 workers and $7,600,000 added by manufacture.

Mississippi showed 11 establishments in 1947, compared with six in 1939. Workers totaled respectively 4,800 and 4,400 production workers, compared with 2,600 prewar; salaries and wages of $13,000,000; value added, $36,500,000 compared with $5,400,000 in 1939.

The *Pacific States* showed a total of 302 establishments in 1947, having 26,900 workers and salaries and wages totaling $93,400,000; of these, 25,800 were production workers having wages totaling $76,700,000. Value added by manufacture was $253,000,000. This compared with 208 establishments for 1939, 16,600 production workers, and $71,400,000 added by manufacture.

Washington State had 63 establishments in 1947; workers numbering 12,900 having salary and wages totaling 43,600,000; of these 11,400 were production workers, with $35,900,000 in wages. Value added by manufacture was $137,700,000. There were 56 establishments in 1939; 8,100 production workers, and value added by manufacture, $38,700,000.

Oregon in 1947 had 38 establishments and 4,600 workers with salaries and wages totaling $14,300,000; of these 4,000 were production workers with $12,300,000 in wages; value added by manufacture totaled $34,700,000. In 1939 there were 29 establishments, 3,100 production workers, and value added by manufacture totaled $10,800,000.

California in 1947 had 201 establishments and 12,100 workers with salaries and wages of $36,500,000; of these, 10,300 were production workers having wages totaling $28,500,000. Value added by manufacture amounted to $80,700,000. There were 123 establishments in 1939, 5,400 production workers, while value added by manufacture totaled $21,900,000.

LEGISLATION

Douglas Amendment Threat

North Adams, Mass.—Paper manufacturers here were cautioned on May 20 against undue optimism in their fight to win Congressional approval of $1,000,000 for flood protection work here and in Adams, as the Senate took up an amendment to slash almost 40 per cent of the funds proposed by Army engineers in the new fiscal year.

Sponsored by Sen. Paul Douglas (D-Ill.) the amendment would delete $300,000,000 from the appropriation previously approved by the Senate Appropriations Committee for work on river and harbor and flood control projects throughout the nation during the new fiscal year which will begin July 1.

Acceptance of the Douglas amendment by the Senate would kill the $1,000,000 appropriation for flood work here, because the House had previously voted no money for this project, and the Douglas cut would make the appropriations bill even smaller than the one approved by the House.

Files Anti-Trust Charges

Washington — The Attorney General on May 26 filed charges in Federal District Court, Seattle, Wash., against the Northern Pacific Railway Co. and its subsidiary, the Northwestern Improvement Co., that sales and leases of parts of its lands violated the antitrust laws, affecting traffic in timber, pulpwood, paper, among other commodities and products.

The complaint charged that the N.P., a land-grant railroad, sold and leased a substantial part of its lands contingent on so-called traffic clauses, which require the lessees and others to ship commodities and products coming from such lands, as well as manufactured products shipped to owners or lessees, exclusively via Northern Pacific Railway Lines.

The total land-grant involved approximates 40,000,000 acres, the complaint stated, located in Wisconsin, Minnesota, North Dakota, Montana, Idaho, Washington state, and Oregon. Approximately 36 million acres have been sold and a large part of the remaining four million acres leased, said the complaint.

Products subject to the traffic clause were listed as timber, lumber, pulpwood, paper, coal, oil, gas, metals, animal products and a variety of manufactured products.

The complaint seeks cancellation of all outstanding traffic clause contracts and a permanent injunction against making any similar contracts in the future.

Still Another Plan

Holyoke, Mass. — Power-conscious paper manufacturers in this area were notified on May 20 that in Washington, the House Committee on Public Works received another plan for unified water control and development on the Connecticut River, its tributaries and watershed.

The latest proposal is sponsored by Rep. Chase Going Woodhouse (D-Conn.) former Smith College professor. Her measure would establish a Connecticut Valley Administration.

Rep. Foster Furcolo (D-Mass.) has filed bills calling for a survey of the hydroelectric potential of New England rivers and a Connecticut Valley Authority, the latter by request of a Northampton organization. Rep. Edith Nourse Rogers (R-Mass.) and Senator Henry Cabot Lodge (R-Mass.) have also introduced survey legislation. No action has been taken on any of the measures.

The CVA contemplated by Mrs. Woodhouse would be established to prevent floods, encourage agriculture, stimulate industrial expansion, develop low-cost hydroelectric power, promote navigation, and "strengthen the national defense."

Mrs. Woodhouse believes this "unified project" should be undertaken in preference to a number of proposals for scattered surveys, and she told paper manufacturers she will attempt to secure solid New England Congressional backing for the measure.

RULINGS

Dam Valuation Reduced

Ottawa—In a judgment given here by Mr. Justice Rheume of the Superior Court, the evaluation of the Chaudiere Dam, owned jointly by the E. B. Eddy Co., Gatineau Power Co., Bronson Ltd., Ottawa Light Heat & Power Co., and J. R. Booth Ltd., has been reduced from $316,000 to $245,000.

AUSTRALIA . . . .

Australian PPITA

The recent General Conference and annual general meetings of the Australian Pulp & Paper Industry Technical Ass'n., which was held in Sydney, consisted of seven sessions at which 21 papers were presented by technical and operating people from paper companies in Australia and New Zealand, and the Division of Forest Products—Council for Scientific and Industrial Research.

On the technical side papers dealt with the influence of base exchange phenomena and high-polymeric nonfibrous addition agents to the properties of pulp and paper; a survey of basic density; green density and moisture content of *Pinus radiata* grown in New Zealand; and the work on the chemistry of eucalypt woods carried out by the Division of Forest Products.

Practical aspects were covered by papers dealing with the production of mechanical pulp from eucalypt wood; work carried out on the temperature of wood near the surface during grinding; the brightening of eucalypt ground-wood by pre-treatment with acid and extraction with alkali; the manufacture of paper, wallboard, coated boards and paper. Pulping was dealt with by two papers—two-stage counter-current pulping; and losses in kraft pulping. Papers on engineering dealt with the correct selection of centrifugal pumps and preventative mechanical maintenance in paper mills.

A symposium on paper testing was followed by a paper on the measurement of internal tearing resistance, and two papers dealing with the calibration, maintenance and correlation of paper testing instruments. Papers on cost determination in the pulp and paper industry, and warehousing as practiced at the Burnie mill of Associated Pulp & Paper Mills, Ltd., were extremely interesting.

In addition to local members there were over 60 visitors to the conference, and a full day was spent in visiting the Botany mill of Australian Paper Mfr's., Ltd.

Election of officers for the Interim Executive Committee resulted as follows: President, Dr. H. E. Dadswell; vice-president, L. R. Benjamin; immediate past president, H. B. Somerset; committee, K. S. Bull, Dr. W. E. Cohen, G. W. Ellis, A. C. Fisher, D. E. Hale, J. L. Somerville and G. H. Wiltshire.

In his presidential address, Mr. Somerset said: "Although this association is as yet in its infancy, I feel sure that a very solid foundation has been laid on which future generations may build. The development of the technical side of the pulp and paper industry in this country is of extreme importance in that we are dealing with a raw material relatively new to the industry. The success which has attended its use to date speaks well for the technical ability of those who were associated with its development in the early stages and who retained their confidence in ultimate success in spite of numerous setbacks and the scepticism with which their efforts were sometimes regarded.

"With the industry now firmly established on the basis of eucalyptus pulp, it falls to the lot of the technical men to seek means to improve the economics of the industry to ensure that when the days of competition come again—as come they must—eucalyptus pulp will hold its own against overseas pulps.

"In our industry the means of lowering costs lie largely within the province of the technical man. . . .

"At the risk of laying emphasis upon the obvious, I propose to enumerate certain lines of attack:

"The yield of pulp can be raised, either by the application of less drastic methods of cooking or, within limits, by a better selection of pulpwood . . . Reduction of chemical requirements and improved methods of chemical recovery are also important. . . . Increase in machine speeds will bring proportionate lowering of costs. Increase in pulp strengths will enable reduction in the quantities of higher priced furnish constituents or permit increase in the amount of lower price fillers.

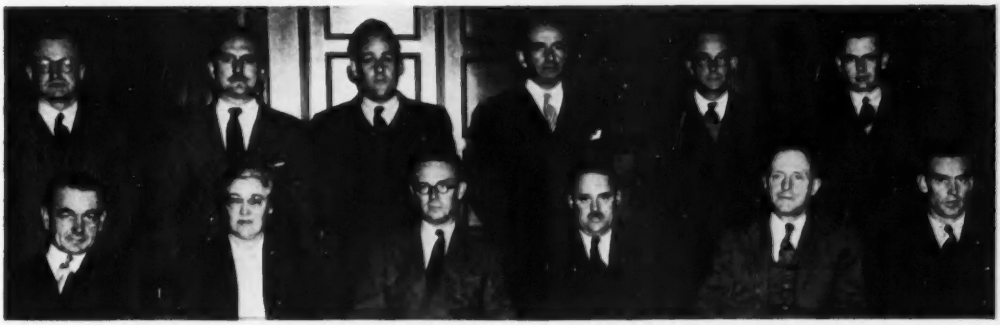
". . . It is possible to visualize savings in the cooking process, in evaporation—for example by increasing the number of effects in the unit—in paper machine operation, and by the recovery of a larger proportion of low grade heat now going to waste.

". . . Major avenues are those concerned with pulp yield, machine output and steam economy, but I should not omit such items as better distribution of products, including such measures as press baling to save shipping space, more economic handling of raw materials by better layout and the maximum use of mechanized equipment, and the realization by all concerned that in the ultimate issue improvement in the operation of any plant is of benefit not only to that particular plant but to the general public.

". . . I am sure that the industry has a bright future. Our per capita consumption of paper products is less than half that of the United States and Canada, and in those countries consumption is still rising steeply. I feel sure that the same will happen in Australia and that the expansion of the industry which is now taking place will merely be the fore-runner of further expansion in the future."

* * *

H. D. Giddy, the new chairman of Australian Newsprint Mills, Ltd., Boyer, Tasmania, and S. L. Kessell, managing director, recently paid a visit to New Zealand in connection with the agreement between New Zealand Forest Products, Ltd., and A.N.M. (Under this agreement the Australian mills undertook to take 12,500 tons of pulp yearly for at least 20 years.) Mr. Giddy declined to say whether he knew of any plan to manufacture newsprint in New Zealand, but he declared that Australia, in all probability, would never be completely self-supporting in newsprint supplies.



Australian Pulp & Paper Industry Technical Ass'n., 1949 interim executive committee . . . Seated, left to right: C. W. Ellis, A.P.N.; Miss C. W. Wright, assistant secretary; H. B. Somerset, past president; Dr. H. H. Dodswell, president; L. R. Benjamin vice-president; G. H. Wiltshire, secretary-treasurer. . . Standing, left to right: Dr. W. W. Cohen; A. C. Fisher; J. L. Brett, assistant treasurer; K. S. Bull A.P.P.N.; J. L. Somerville, A.N.N.; D. H. Hale.

IRELAND

The Irish Carton Industry

DUBLIN, Ireland — Many firms of packers showed their products in new packs, and some new products were shown in the Industries Section of the Royal Dublin Society's Spring Show, which was held during the first week in May.

One of the best designed exhibits was the stand of Hely's, Ltd., of Dublin, color printer and manufacturer of containers. The theme of their display was their range of corrugated containers.

Before the war, Hely's had a certain trade in the manufacture of cartons, and collapsible containers. During the war, the firm was forced to discontinue a large number of these lines owing to the shortage of materials, but it has recently come back into the container business in a big way.

By arrangement with Rigid Containers, Ltd., of Desborough, near Kettering, Hely's is to put a collapsible "day old" chick box on the Irish market.

An American printer-slotter machine has recently been installed by Hely's. This machine prints in two colors and creases and slots the blanks ready for wire stitching or taping. The capacity of the machine is limited by the speed at which the human element can handle its output, but it can produce 5,000 an hour.

Hely's latest auxiliary equipment includes partition-slotting machines and separate creasing and slotting machines for the manufacture of oversize containers.

A brochure issued by Hely's, and distributed at the show gave a comprehensive account of the firm's corrugated container business. This booklet, attractively got up, and printed in five colors, included a panel headed "Medals." In it was recorded the case history of a manufacturer packing a liquid in bottles and using Hely's containers, who reported that over a period of six months, his goods traveled safely by road and rail, with fewer than .3 percent breakage.

* * *

Jefferson Smurfit & Sons, Ltd., of Dublin, had a stand at the show. The firm also supplies a very substantial part of the Irish carton market. Its stated policy is to keep prices low and its machinery has been selected with this end in view. The firm has a large sale for a "day old" chick box of its own design and anticipates that this will be even more successful next season.

* * *

If one may interpret an experimental exhibit by the Irish Glass Bottle Co., Ltd., of vegetables and other food products packed in jars, as an indication that food packing in glass may become more general in Ireland, one may anticipate an even greater demand for corrugated containers. The jars of food were purely experimental and were not shown by manufacturers or packers elsewhere in the show, having been packed specially for the Irish Glass Bottle Co., which sees a great future in foodstuffs in glass, and is looking for markets among packers both in Ireland and abroad. I.G.B., Ltd., believes that glass packing would be only a trifle dearer than cans, and that the public would readily pay that trifle more.

* * *

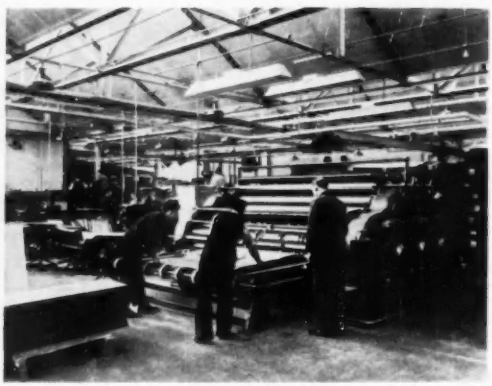
A slightly out-of-the-way pack seen at the show was a cellophane double walled bag, used by W. P. & R. Odlum, Ltd., of Sallins, County Kildare, for its Triumph Oatmeal. Purpose of the double wall is to protect the oatmeal from the print on the label which is contained inside the cellophane. These bags are manufactured by Messrs. Colodense of Bristol.

* * *

Dixon & Co., Ltd., of Dublin, which makes its own containers for its own products, showed cannisters and cartons which it also makes for other firms' products. Many of the containers which it is making are of cardboard with zinc tops and bottoms for various powder products. It has also been making cardboard roller tubes for plastic sheeting made by Irish Mouldex, Ltd., of Wexford.

* * *

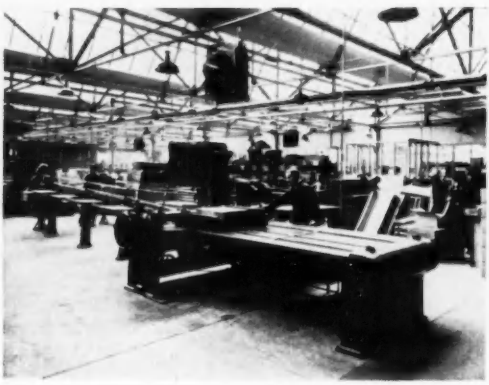
The holding of the Spring Show fortuitously coincided with the issue by Cerebos (Ireland), Ltd., of a new composite drum for its table salt. This drum had a tin top and tin bottom, the tube being of waxed cardboard. These cartons are imported from Britain but are assembled and packed in Ireland. They are printed in eight



LEFT: American printer-slotter Hely's, Ltd., Dublin, Ireland. Fully automatic, it prints in two colors and slots and creases the blanks ready for wire stitching or taping.

BOTTOM LEFT: Taping corners of finished containers at Hely's, Ltd.

BELOW: Delivery end of automatic taper at Hely's, Ltd.



colors and look much more attractive than the tins which had been in use previously, but Cerebos regards the new pack as only a temporary expedient, and proposes to return to the former tin container as soon as the tin supply situation makes this possible.

* * *

The only examples of packaging at work were to be found at the stand of P. J. Carroll & Co., Ltd., tobacco manufacturer, of Dundalk, which had an exhibit showing how packets of Sweet Afton cigarettes are covered by cellulose, with a quick-opening tear-off strip attached. The machine used was by the Molin Machine Co., Ltd. The firm also had a demonstration of the Briskwrap machine for parcelling.

MILLS

K-C Departmental Reorganization

NEENAH, Wis. — John R. Kimberly, vice-president of sales of the Kimberly-Clark Corp., reports three top divisional changes affecting the sales department. Lawrence Stedman becomes eastern district representative for the corporation in New York City, John B. Catlin replaces Mr. Stedman as divisional sales manager of book paper, and A. G. Sharp becomes administrative assistant to Mr. Kimberly. "The three moves complete a departmental reorganization designed to compensate for the corporation's expansion program, and including complete management responsibility for the Coosa River Newsprint Co., now under construction at Coosa Pines, Ala.," Mr. Kimberly states. In the latter connection, Ralph M. Watt, previously eastern district representative for Kimberly-Clark, recently was appointed sales vice-president for Coosa River, and W. W. Cross of Kimberly-Clark was named sales manager of the newsprint company.

NAM Committeemen

SPRINGFIELD, Mass.—Two Greater Springfield paper manufacturing officials today were selected to serve on important policy committees of the National Assn. of Manufacturers for the coming year: George Williamson, president of the Strathmore Paper Co., of West Springfield will serve on the committee on cooperation with community leaders, and H. A. Chadbourne, president of the Old Colony Envelope Co., of Westfield will serve on the distribution committee which analyzes the major problems of distribution.

Small Hydraulic Barker

VANCOUVER, B. C.—British Columbia's woodpulp reserves may be extended further by introduction of a "small' hydraulic barker to do for the smaller logs and salvage sticks what the big Bellingham barker is now doing at B. C., pulp mills for large timber. The smaller machine has already been built and tested at the Hoquiam, Wash., mill of Rayonier, Inc.

ATOMIC ENERGY FOR POWER NEXT?

Steam was shut off from the old-time stationary engine at the Pequannock Valley Paper Co., Butler, N. J., at the end of April, when the mill turned to the Central Power & Light Co., for electric power to operate its mill. Shown in the picture from left to right are: Vice-President W. Clayton White, Jr., and George Johnson, an employe for 50 years, at the valves; W. Clayton White, 3d; and Secretary-Treasurer DeGray White, holding W. Clayton White, 4th. . . W. Clayton White, Jr., started the engine when it was new, 38 years ago, at the time the mill abandoned the nearby river as a source of power. . . W. Clayton White, Sr., now retired, and President Joseph B. White, were not present at the ceremony. . . The 1,000 hp cross-compound Corliss engine was built in 1910 by Watts Campbell of Newark, N. J.

Following success of the Bellingham barker, which is reported to save up to 15 percent of the tree, the Sumner Iron Works, Everett, Wash., tried out logs as slim as four inches in diameter, four to six feet long, in the original and bigger machine at the Puget Sound Pulp & Timber Co.'s Bellingham plant. These were debarked successfully, indicating that the principle of the original machine could be embodied in a small unit. Subsequently, Sumner engineers designed and built the new unit, now installed at Hoquiam.

Arrangements have been made for manufacture of the Package Unit, as it is called, by Canadian Sumner Iron Works in Vancouver for the Canadian and Commonwealth markets.

Full utility of the new equipment is still undetermined, but these applications have been suggested: (1) In smaller sawmills where the large barker would not be an economical machine to save wood-waste for pulping. (2) For salvaging large quantities of tree-tops now left in the woods. (3) For use in any new pulp mill which may be set up in parts of interior British Columbia where there are good stands of small timber.

Outside British Columbia, the big market is expected to be in eastern Canada where "cordwood" size timber forms the bulk of pulpwood available.

A stream of water thrown by the machine to peel the logs comes from an eight-inch nozzle, and the pump throws 600 gallons of water per minute at 1,300 pounds per square inch pressure.

Admitted to CIA

NEW YORK—Edward A. Johnston, comptroller of the Minnesota & Ontario Paper Co., Minneapolis; Stephen A. Lipscomb, Jr., controller of the Camp Mfg. Co., Inc., Franklin, Va.; Wayne E. Poutinen, controller of the Pollock Paper Corp., Dallas; and Clayton E. Rogers, comptroller of the Puget Sound Pulp & Timber Co., Bellingham, Wash., have been elected to membership in the Controllers Institute of America.

Taggart Absorption Planned

WATERTOWN, N. Y. — The Taggart Corp., formed 20 years ago, will lose its identity on June 8 when the stockholders will vote at a meeting to be held in Baltimore, Md., to merge with the St. Regis Paper Co. The St. Regis owns 95 percent of the 816,633 shares of outstanding Taggart common stock. An offer of $11 a share is being made by St. Regis for the rest of the stock. This price represents substantially its

(Continued on page 16)

MILLS . . . . . .

(Continued from page 15)

current book value and market level. St. Regis has been picking up the Taggart common, much in the open market, during the past five years at prices ranging from $5 to $11. The Taggart Corp. was formed in 1928 when paper bag plants in Watertown, Herrings, Carthage and Oswego were consolidated. Roy K. Ferguson is president of both corporations. The directors and officers also are the same.

Sapelo Forest Nursery

SAVANNAH, Ga.—Union Bag & Paper Corp., as part of its program of "growing more trees for tomorrow" has opened a forest nursery at its Sapelo Forest, 45 miles south of this city. The nursery this year will produce a million pine seedlings for planting on company land and for distribution to other private land owners. T. B. Dalby, forest supervisor, is in charge of the nursery. During the 13 years the company has operated its plant here, it has planted on its lands and distributed to the other land owners approximately 12 million seedlings.

J. J. Armstrong, general manager of the woodlands division of the company, stated that opening of the Sapelo nursery will not change Union Bag's practice of purchasing additional pine seedlings from the state nurseries for planting on company tracts and for free distribution to youth organizations.

Rau Hosts Industrialists

ST. HELENS, Ore.—Irving T. Rau of the St. Helens Pulp & Paper Co. was host on May 25 to some 40 industrialists, businessmen, civic leaders, newspapermen and legislators at a board meeting of Columbia Empire Industries, of which Mr. Rau is president.

The program included informal general discussion of problems of business in the St. Helens area and a brief resume of legislative activities of Columbia Empire Industries.

Schwede Joins Union Bag

NEW YORK — John P. Schwede has been named director of export sales of the Union Bag & Paper Corp., succeeding R. A. Stevens, who has been named as consultant to the export department. Before joining Union Bag, Mr. Schwede was with the marketing departments of the Standard Oil Co. of New Jersey and the U. S. Rubber Co.

Addresses Ashevillians

ASHEVILLE, N. C. — Reuben B. Robertson, president of the Champion Paper & Fiber Co., was the chief speaker at the 45th annual membership dinner meeting of the Asheville Merchants' Ass'n., May 19.

Geisler Visits Uruguay

NEW YORK—Walter Geisler, exporter of paper mill machinery and supplies, recently visited Fabrica Nacional de Papel, S.A., in Montevideo, Uruguay.

Gaylord Educational Supplement

BOGALUSA, La. — The Gaylord Container Corp. recently published a 12-page newspaper supplement in this city's *Louisiana Daily News* which circulates in the area from which Gaylord draws both manpower and pulpwood.

The supplement, a community relations project, recounted the development of Bogalusa from a woods town to one of big industry and provided educational data on woods operations. Land owners were told how to get the most value from their timber holdings and how to build up cut-over land to provide a steady source of income. For 'teen agers, it was a pictorial textbook on forestry conservation and the operation of one of America's largest, growing industries.

Nelson Succeeds Clark

NEENAH, Wis.—C. W. Nelson, an assistant vice-president, was elected on May 24 to the board of directors of the Kimberly-Clark Corp., filling a vacancy caused by the recent death of C. B. Clark. Mr. Nelson came with Kimberly-Clark in 1913 and was chief engineer of the corporation for many years.

Johnston to Union Bag

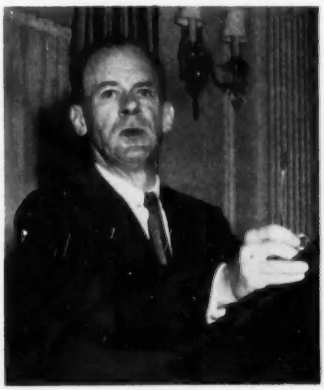
NEW YORK—J. D. Johnston has been named to the sales staff of Union Bag & Paper Corp. He has been assigned to promote sales of Union Bag's Scutan waterproof paper lines. Mr. Johnston formerly was sales manager for W. Ralston Company, Inc., and of the Gaylord Container Corp.

Quarter-Century Club Banquet

GLENS FALLS, N.Y.—Presentation of watches and 25-year service pins to 19 new members highlighted the annual Quarter Century Club banquet held May 21 in the Queensbury hotel here by the Union Bag & Paper Corp. of Hudson Falls. Mrs. Frances Shanahan, one of the new members, and her husband observed their 25th wedding anniversary at the banquet.

Other employes completing 25 years of service and joining the club, now totaling 146 members, are Walter Blood, Earl Bruce, Walter Chase, Arthur Dumas, Aulaff Haines, August LaPointe, Rose Nassivera, Raymond Pelkey, Charles N. Pratt, Lawrence Ross, Charles Stanley, Thomas Taylor, Cecelia VanTassell, Morris VanTassell, George Ward, Alfred Willette, Alma Willette, and Alexander Yasko.

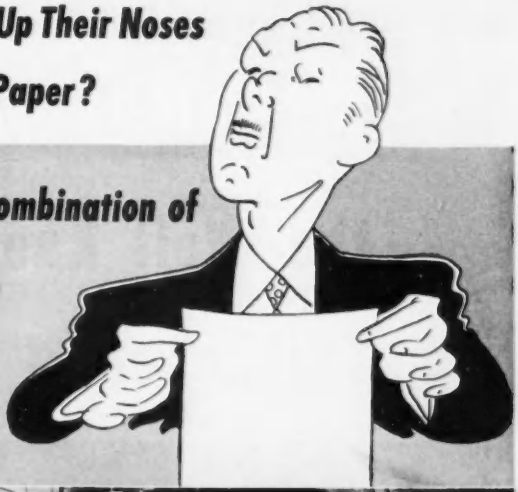
A message of congratulation and welcome was read to the 275 members and guests by F. Ray Marrs, resident manager, from President Alexander Calder, Sr. Speakers included Union Bag's vice-president True M. Avery; Leonard J. Doyle, vice-president in charge of sales; and H. S. Daniels, executive vice-president.



H. STUART DANIELS
Executive Vice-President
Union Bag & Paper Corp.

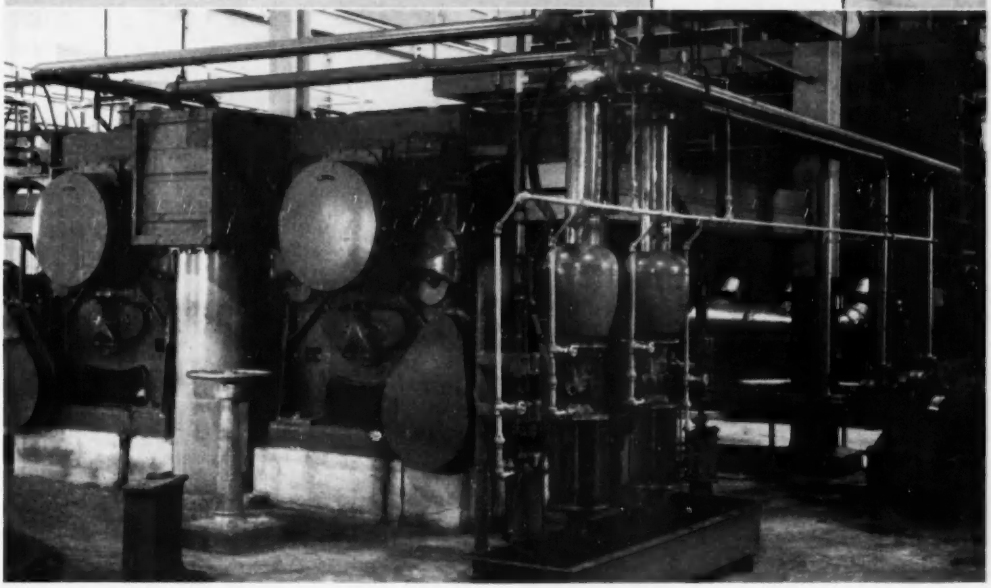
Union Bag & Paper Corp., Quarter-Century Club banquet guests: Seated, left to right: Alfred Willette, Alma Willette, Rose Nassivera, Frances Shanahan, Cecelia VanTassell and Augustus La Point. . . Standing, left to right: H. Stuart Daniels; Union Bag's executive vice president; True M. Avery, vice president; Morris VanTassell; Walter Chase; Charles Stanley; Leonard J. Doyle, vice-president; Arthur Dumas; Lawrence Ross; Walter Blood; Charles N. Pratt; George Ward; Alexander Yasko; Aulaff Haines; Earl Bruce; Thomas Taylor and P. Fay Marrs, resident manager.

Are Buyers Beginning to Turn Up Their Noses At the Dirt In Your Paper?



NOT If You Have the Right Combination of

BIRD SCREENS and DIRTECS on Your Team



In this installation, Bird Screens are equipped with Dirtec tailings units. The dirt removed by the Screens is out, and out for good, with negligible loss of fibre in the tailings. Let us tell you more about the advantages and economies of this hook-up.

BIRD
MACHINE COMPANY
South Walpole
Massachusetts

The surest way to keep customers from complaining (or from going elsewhere to get cleaner paper) is to put your stock through Dirtecs and then through big, modern Bird Screens.

The Dirtecs whisk out the heavy and fine dirt — the dirt differing in *specific gravity* from that of the fibres.

The Screens get the dirt differing in *size* and they comb, straighten and individualize the fibres, assuring good formation at top machine speed. They deliver stock free of strings, lumps and slime — uniform in weight.

Now is the time when clean paper counts, in a competitive market.

Ask us to show you what the right combination of Screens and Dirtecs can do for you.

Methocel:

the Well Known Thickener

The outstanding advantage of Methocel as a thickener is that *so little will do so much.* To the paper manufacturer, this quality is highly useful in several ways.

First, Methocel's superior thickening qualities are valuable in the control of latex viscosity. Compatible with all but one commercially used latex, Methocel is the versatile thickener which gives inexpensive, uniform viscosity control.

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CHEMICALS INDISPENSABLE
TO INDUSTRY AND AGRICULTURE

Bark Research at McGill University[a]

By

VICTOR D. HARWOOD and C. B. PURVES

McGill University

Recent reviews[1,2] have shown that most of the interest in the barks of commercial species of woods has centered in the chemical nature of bark "lignin" and bark cellulose. Although the tannins[3] and certain alkaloids extracted from a few species have been studied in detail, extractives in general have received little attention since the work of Zellner and his collaborators[4]. These authors used a standard procedure when examining the barks of many hardwoods native to Austria. A quantity of the finely divided air-dry bark was extracted with boiling 95 percent ethanol, and, after concentration, the extract was poured into water. The water insoluble materials, classified in Table I as Groups I, II, III, precipitated from the dilute alcohol solution of Group IV, and were further separated by extracting the precipitate first with petroleum ether and then with ether. Reextraction of the residual bark with boiling water removed Group V and left a "cellulose-lignin" complex that Zellner did not examine in detail. The separation of the various groups was by no means clean-cut.

TABLE I

Gross Solubilities of Extractables from Barks*

Group	Class of Substances	Soluble in	Insoluble in
I	Volatile terpenes, aldehydes, etc		
	Aliphatic oils, fats, waxes	Petroleum ether	
	Higher acids and alcohols	Ethyl ether	Water
	Hydrocarbon resenes, plant sterols	Alcohol	
II	Amorphous resins and resin acids		
	Substances as in I but more highly hydroxylated	Ethyl ether Alcohol	Water Petroleum ether
III	Phlobaphenes. Sometimes also glycosides	Alcohol	Water Petroleum ether Ethyl ether
		Alcohol	Petroleum ether
IV	Tannins, simple sugars, glycosides, etc.	Water	Ethyl ether
V	Polysaccharides, gums and pectins	Water	Petroleum ether Ethyl ether Alcohol

* Based on reference 4.

In the general, the "Klason lignin" of barks is dependent in amount upon the details of the prior extractions,[5,6] since the tannins leave an insoluble residue, similar in composition to that from fir bark fiber[7], when treated with the 72 percent sulfuric acid used in a Klason lignin determination. Dilute alkali extracted from redwood bark fiber some phenol carboxylic acids which resembled humic acids, and also a less soluble, methoxyl-containing "lignin" which differed from wood lignins by possessing carboxyl groups[8,9]. The bark dust of the redwood fiber contained 70 to 80 percent of phenol carboxylic acids and was 88 percent soluble in dilute alkali.

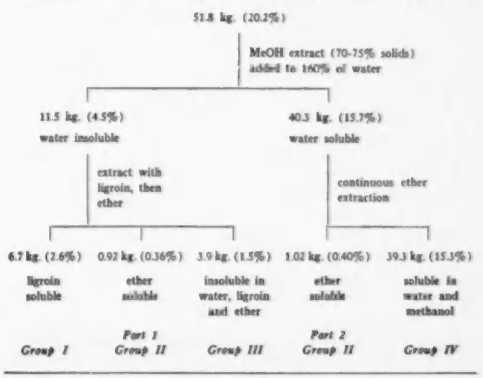
The present paper summarizes current research on the substances extracted from white spruce bark by methanol, followed by hot water and dilute caustic soda. Although Zellner and his collaborators isolated many pure chemical individuals from back extracts, many were obtained in impractically small amounts because only 3 to 12 kg. of bark was used. The present work has been carried out on a 257 kg. bark sample in an effort to avoid this difficulty, but the outline of Zellner's procedure has in other respects been retained. White spruce is the most abundant species of spruce in Eastern Canada[10] and is a major source of newsprint.

Extraction of the Bark with Methanol

The long wide strips of bush-peeled bark[b] were broken by hand and fed into an Appleton 24 in. chipper to reduce most of the pieces to 3″ by 6″ in size. From the moisture content, 11 percent, as determined by Mitchell's adaptation[11] of the Karl Fischer reagent, the dry weight of the bark was calculated to be 567 lbs. or 257 kg. Small-scale experiments showed that methanol was the most efficient solvent, since it extracted 29 percent of the bark, including 62 percent of the ether-solubles. Ethanol-benzene (1:2) extracted only 21 percent of the bark, although this amount included 77 percent of the ether-solubles. The whole of the bark was then placed in cotton bags and extracted for two 30-hour periods with 245 gallons of 97 percent methanol in a Soxhlet[c]. To reduce the hazard of the inflammable, poisonous, methanol fumes, the extracted bags were immersed in water for 72 hours at room temperature. The volumes of the methanol and water extracts were 70 and 120 gallons and they contained 51.7 and 9.7 kg. of solids respectively. The aqueous ex-

TABLE II

Fractionation of the Concentrated Methanol Extract



[a]—Presented to Northeastern Wood Utilization Council Bark Conference and published in Bulletin 25 "The Chemistry and Utilization of Bark."

[b]—The authors wish to express their thanks to Dr. A. J. Corey and Mr. E. L. Howie of Fraser Companies Limited, Edmundston, New Brunswick, for their helpfulness in collecting and forwarding the bark.

[c]—The authors are greatly indebted to Mr. Ross Taylor of Stuart Brothers Company, Limited, Montreal, Que., for the use of commercial equipment and for his kindness in supervising the extraction.

tract was worked up separately (see below) and the residual bark was air-dried and stored for later examination.

Tedious batch distillations reduced the volume of the methanol extract to approximately 60 liters (75 percent solids), and then incorporation with 160 percent by weight of water caused the precipitation of Zellner's Groups I to III (Table I). After recovery from the mother-liquor, this mixture was separated by extractions, first with ligroin (Skellysolve B) and then with diethyl ether into Groups I and II respectively, while the residue insoluble in water, ligroin and ether was the phlobaphenes of Group III. The yields of these groups have been summaried in Table II.

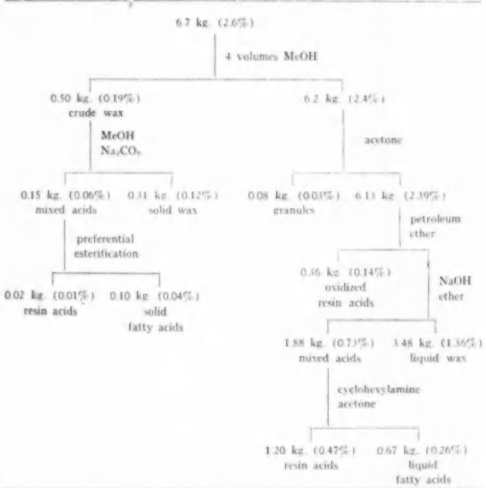
Separation of Group I Substances (See Table II)

The 6 liters of concentrated, green-black ligroin extract (90 percent solids) was added to 4 volumes of methanol, thereby causing the separation of a solid yellow wax associated with resin and fatty acids. The latter were removed by treatment of the hot methanol solution of the wax with 10 percent aqueous sodium carbonate, to cause the formation of the insoluble sodium salts. After recovery and extraction with ether, acidification of these salts liberated a mixture of fatty and resin acids, which was separated by preferential esterification[12] of the fatty acids.

The darker colored methanol mother liquors from this wax fraction were concentrated to 75 percent solids,

TABLE III

Fractionation of the Ligroin Extract (Group I)



and diluted with an equal volume of acetone. After being kept for several weeks at 0°, the white granular precipitate which had formed was removed and the supernatant liquor was again concentrated to a low volume. Dilution in stages with 20 volumes of petroleum ether (Skellysolve F) caused the separation of a brown semi-solid, tacky precipitate of oxidized resin acids.

Most of the petroleum ether was removed by distillation, 4 percent aqueous caustic soda was added and

TABLE IV

Composition of the Fatty Acids of the Liquid Wax Fraction

Type of acid	Total acids %*	Combined acids %*	Free acids %* (by difference)
Saturated	6.9	1.6	5.3
Oleic	8.9	6.6	2.3
Linoleic	8.5	4.2	4.3
Linolenic	3.2	1.4	1.8

* Based on the liquid wax fraction consisting of neutral esters and free acids.

TABLE V

Composition of the Liquid Fatty Acids from the Acetone-Soluble Cyclohexylamine Salts

Type of acid	Total acids %*	Combined acids %* (by difference)	Free acids %*
Saturated	14.1	3.0	10.1
Oleic	16.4	6.5	9.9
Linoleic	12.2	1.6	10.6
Linolenic	5.9	2.1	3.8

* Based on the weight of acids and neutral material obtained on acidification and extraction with ether of the acetone-soluble cyclohexylamine salts

the resulting emulsion was separated by extraction with ether into a liquid wax and a mixture of resin and liquid fatty acid soaps. The corresponding free acids were then separated by Harris' procedure[13] into acetone-soluble fatty acid and acetone-insoluble resin acid cyclohexylamine salts.

It should be pointed out that the separations described above, and particularly those of acids from neutrals, were probably not complete, because of the marked solubility in ether of the alkali salts of the higher saturated fatty acids[14] and resin acids[15].

Saponification of the solid wax noted in Table III gave a 34.7 percent yield of an unsaponifiable fraction, of which about 51 percent was lignoceryl alcohol and the remainder was a non-carbinol. The methyl esters of the fatty acids recovered from the soap were analyzed spectrophotometrically[16] and shown to consist only of saturated (67.9 percent) and mono-unsaturated acids (32.1 percent) calculated as oleic acid. Only about 20 percent of these esters was distillable from a Willstätter flask at 245°C. and 1.3 mm. The aqueous liquor remaining from the saponification after the extraction of the fatty acids probably contained glycerol, because when oxidized with periodate it yielded a positive test for formaldehyde. As is well known, such an oxidation of glycerol yields two moles of formaldehyde and one of formic acid. The solid wax was apparently based on lignoceryl alcohol but was associated with triglycerides composed of saturated and oleic acids, with free acids of the same general types and also with resin acids and a non-carbinol fraction.

The unsaponifiable matter (42.6 percent) from the liquid wax (Table III) contained hydroxyl groups[17] and in addition a steam-distillable fraction (3.6 percent of the unsaponifiables). Glycerol[18] amounted to about 1 percent of the wax. The composition of the fatty acids was saturated, mono-unsaturated, di-unsaturated and tri-unsaturated, the last three being calculated as oleic, linoleic and linolenic acids, respectively. By the

TABLE VI

Fatty Acid Composition of Group I Fractions (see Table III)

Source	Type of Acid							
	Saturated		Oleic		Linoleic		Linolenic	
	Source %	Dry bark %	Source %	Dry bark %	Source %	Dry bark %	Source %	Dry bark %
Solid wax	37.0	0.044	17.5	0.021	.....	.....	....	.....
Solid fatty acids	100	0.040	.....	.....	.....	.....	....	.....
Liquid wax	6.9	0.093	8.9	0.120	8.5	0.115	3.2	0.043
Liquid fatty acids	14.1	0.037	16.4	0.043	12.2	0.032	5.9	0.015
Resin acids*	4.6	0.021	4.5	0.021	4.8	0.022	1.7	0.008
TOTAL		0.235		0.205		0.169		0.066

*** The fatty acids contaminating this fraction are assumed to have the same composition as the free fatty acids in the liquid fatty acids fraction.**

Weitkamp procedure[19] the truly neutral fraction was separated from a mixture of free resin and fatty acids and its saponification and subsequent analysis enabled the composition of both the free and combined acids to be calculated. The results are recorded in Table IV.

The foregoing results indicate that this fraction consists of a liquid wax associated with a liquid triglyceride and contaminated with resin and fatty acids. Some non-carbinol material, including a small amount of steam distillable terpenes, was also present.

As in the case of the liquid wax fraction, the crude acetone-soluble fatty acid cyclohexylamine salts (Table III) were found to contain neutral esters in addition to the free acids. The analyses of the total and the free fatty acids enabled the composition of the combined acids to be calculated as recorded in Table V.

The total yields of the various types of fatty acids, both combined and free, are assembled in Table VI. Resin acids amounted to 0.94 percent of the dry bark. Similar investigations are in progress with the substances in Group II, Part 1, (Table II), but the examination of the phlobaphenes in Group III and the ether soluble Group II, Part 2 fraction has not yet been attempted.

Separation of Substances in Groups IV and V *(See Table VII)*

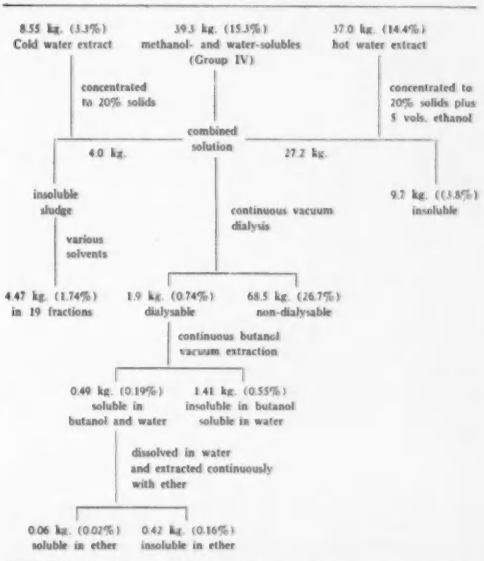
As noted in Table VII, the aqueous extract containing Group IV and V of Table I were derived from the precipitation of the concentrated methanol extract with water and from subsequent cold water and hot water extractions of the bark residue. All the work with aqueous extracts was carried out independently by the authors' colleague, Mr. C. T. Bishop.

The 120 gallons of cold-water extract was concentrated[d] under diminished pressure, at a temperature not exceeding 85°, to one-tenth of its original volume. This solution (total solids 8.55 kg.) deposited on standing a sludge which, by successive extraction with n-propanol, ethyl acetate, chloroform, benzene and dioxane, also by treatments with 1 percent and saturated lead acetate solutions, yielded 19 fractions. These fractions were either yellow amorphous gums that rapidly darkened in color when exposed to air, or were dark-gray granular powders. The weights of these fractions ranged from 1.0 to 1259 g., the total weight being 4.47 kg. Their examination is now in progress.

[d]—The authors express their thanks to Professor J. B. Phillips of the Chemical Engineering Department, McGill University, for the use of a pilot plant size vacuum evaporator.

TABLE VII

Fractionation of the Water Soluble Extracts Groups IV and V


8.55 kg. (3.3%) Cold water extract
39.3 kg. (15.3%) methanol- and water-solubles (Group IV)
37.0 kg. (14.4%) hot water extract
concentrated to 20% solids
concentrated to 20% solids plus 5 vols. ethanol
combined solution
4.0 kg.
27.2 kg.
insoluble sludge
9.7 kg. (3.8%) insoluble
continuous vacuum dialysis
various solvents
4.47 kg. (1.74%) in 19 fractions
1.9 kg. (0.74%) dialysable
68.5 kg. (26.7%) non-dialysable
continuous butanol vacuum extraction
0.49 kg. (0.19%) soluble in butanol and water
1.41 kg. (0.55%) insoluble in butanol soluble in water
dissolved in water and extracted continuously with ether
0.06 kg. (0.02%) soluble in ether
0.42 kg. (0.16%) insoluble in ether

An extraction with 105 gallons of hot water removed 5.44 kg. of material from 37.8 kg. of the air-dry methanol and cold-water extracted bark. Concentration to 20 percent total solids was followed by dilution with 5 volumes of 95 percent ethanol, whereby 1,425 g. of a gray granular substance was deposited. This fraction has not yet been studied.

The combined mother liquors from the hot and cold water extracts, together with the water soluble part of the methanol extract, were continuously dialysed for weeks in a special vacuum dialyser. This apparatus was designed so that a limited amount of water* circulated continuously through the cellophane dialyser and a still which operated under diminished pressure. The dialysate, which was recovered at intervals in concentrated form as the still residue, was then extracted with *n*-butanol in a continuous liquid-liquid extractor, which also operated at reduced pressure. The butanol solubles were separated into two groups by solution in water and extraction with ether.

The butanol-insoluble part of the dialysate was analysed for pentose[20], total reducing sugars[21], reducing sugars after hydrolysis, fermentable sugars and mannose[22]. Traces of sucrose[23] and fructose[24] were present, but after acid hydrolysis the amount of the latter increased considerably. From a consideration of the results in Table VIII, the carbohydrates in this fraction

TABLE VIII

Results of Sugar Analyses on Butanol Insoluble Dialysate

Sugar	% of solution	% of dry bark
Pentose	2.07	0.011
Mannose	1.26	0.007
Mannose after hydrolysis	1.24	0.007
Fructose	0.04	trace
Fructose after hydrolysis	2.53	0.014
Total reducing sugars	47.6	0.262
Total reducing sugars after hydrolysis	75.9	0.418
Sucrose	0.9	0.005
Non-fermentable sugars	1.7	0.009
Non-fermentable sugars after hydrolysis	1.7	0.009
Xylose, arabinose	negative	.....
Rhamnose, galactose	negative	.....
Uronic acids	negative	.....

consist of glucose mixed with traces of mannose, fructose and sucrose. The sharp increase in reducing power after acid hydrolysis was not accounted for by any increase in the percentage of mannose or of non-fermentable sugars, while the increase in apparent fructose was inconsequential. It appeared, then, that acid hydrolysis liberated glucose from a dialysable glycoside or polysaccharide based on glucose, but repeated efforts failed to isolate such a substance.

Examination of the Bark "Lignin"*

After the bark had been extracted with methanol and cold water, a portion was exhaustively extracted with 5 percent aqueous caustic soda at room temperature. The black liquor, when cautiously acidified with concentrated sulfuric acid, deposited a brown sludge. This sludge was solvent-exchanged into methanol and then into ether to reduce its great tendency to peptize, and was washed free of sulfate ion with water. A second solvent-exchange from methanol into ether, followed by drying, left the "lignin" as a light brown amorphous powder; yield 28.12 percent of the ash-free dry bark.

When the "Klason lignin" content of this fraction (Table IX, column 3) is reduced to the basis of the

TABLE IX

Comparative Analyses of Spruce Bark, Bark "Lignins" and Soil Humus

	Spruce Bark[a]	Spruce Bark "Lignin"	Redwood Bark Dust "Lignin"[b]	Soil Humus[b]
Ash %	2.75	5.07	.....	.....
	.....	1.43[b]	.....	.....
Pentosan %	.....	3.06	.....	.....
"Klason Lignin" %	36.52	90.19	.....	.....
Kjeldahl Nitrogen %	0.48	1.64	.....	.....
Original OCH_3 %	.....	1.46	0.00	1.2
Acidic OH %	.....	2.7[c]	4.2[d]	4.5[d]
Phenolic plus aliphatic OH %[e]	.....	10.5	12.2	6.1
Total free OH %	.....	13.2	16.4	10.6
Carbon %	.....	58.38	57.1	.....
Hydrogen %	.....	4.97	5.0	.....

[a] After removal of most of methanol- and water-solubles.
[b] After removal of most of the inorganic salts by treatment with conc. HCl.
[c] Calculated from carboxyl content 7.22 x 17/45
[d] Calculated from acidic methoxyl content data of authors.
[e] Calculated from methoxyl content obtained by methylating with Me_2SO_4 and NaOH.

original extracted bark by the use of the yield factor 0.28, the result 90.19 x 0.28 or 25.2 percent, is less than the 36.5 percent of "Klason lignin" found prior to the alkali extraction. The difference of 11.3 percent presumably represents substances not extracted by alkali but responsive to the "Klason lignin" estimation. A similar calculation, however, shows that the nitrogen content of the bark "lignin" (1.64 percent) accounts within analytical error for the nitrogen in the starting material. It may be that the nitrogen in bark is present as an alkali-soluble "protein-lignin" complex, as is thought to be the case for the nitrogen in soil humic acids[25].

A comparison of the analyses of spruce bark "lignin" with published data for redwood bark dust "lignin" shows a close similarity between the respective figures for phenolic and aliphatic hydroxyl groups, and for carbon and hydrogen. Hence the two "lignins" are somewhat similar. The similarity to a "soil humus" (Table IX, column 4) extends to the methoxyl content, but on the whole spruce bark "lignin" seems to occupy a position intermediate to the other two natural products.

A fusion of the spruce bark "lignin" with caustic soda resulted in a complex mixture of substances which could not be separated and identified but whose phenolic nature confirmed the presence of aromatic nuclei in the material. Oxidation with nitrobenzene and alkali produced acidic, phenolic and carbonyl-containing compounds but no vanillin. Methylated spruce bark "lignin," when oxidized in the same way however, did yield 0.5% of vanillin. Since the yield of vanillin from spruce wood lignin may be as high as 20%, the bark "lignin" could not be regarded merely as a non-methylated wood lignin. The analogy between the bark "lignin" and the soil humic acid was closer in this respect, because the latter only produced small amounts of vanillin[25].

Hydrogenation of 100 g. of the spruce bark "lignin" in a dioxane suspension over copper-chromium oxide catalyst led to the absorption of 3.46 moles of hydrogen at 200°C. This temperature was 60° lower than that at which alkali or methanol wood lignin absorbed hydrogen under similar conditions, perhaps because the methoxyl groups in wood lignins stabilize the benezene ring

* This preparation, together with the examination of the bark "lignin," is abstracted from a thesis presented in 1947 to McGill University by Dr. C. H. Gleason in partial fulfillment of the requirements for Ph.D.

to reduction. The main product of the hydrogenation was water, formed presumably either by the hydrogenolysis of hydroxyl or the reduction of carboxyl groups. Dimethylamine accounted for 12.3% of the nitrogen in the bark "lignin," the rest presumably being lost as volatile amines. Fractional distillation of the hydrogenated product showed that 5.6% boiled from 60-180°C at 7 mm., Fraction I; 6.7% from 120-200°C at 0.1 mm., Fraction II; while 31.1% remained in the still. p-Methyl cyclohexanol and 4-n-propylcyclohexanol-1 were obtained from Fraction I, and also a compound containing secondary hydroxyl groups and analysing for $C_{16}H_{20}O_2$. The first two of these three substances were definitely identified as crystalline derivatives and have been obtained by other workers in much greater yield from the hydrogenation of wood lignins. Fraction II contained two compounds analyzing for $C_{13}H_{24}O_2$ and $C_{18}H_{32}O_2$ respectively. The still residue after purification by reprecipitation was a yellow-brown wax with the composition $(C_{16}H_{26}O)_2$ but preliminary tests for hydroxyl groups and ether linkages were negative. Its composition and general properties, together with its relatively large amount, suggested that in respect to high pressure hydrogenation spruce bark "lignin" resembled soil humic acid[25] and Adkins' wood alkali lignins[26] more closely than wood lignin itself.

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Dry Creping of Tissue

By

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The primary objective of this paper is to discuss the manufacture of dry-creped tissues. The facts to be given are pertinent only to the manufacture of facial and wadding-type paper. No references will be made to the production of wet-creped tissues or the MG sheet. It is fully realized that the subject matter as a whole is extremely controversial and that the manufacture of paper in general requires custom-built equipment and individual operating techniques to suit the special grade or grades being produced at any given mill.

There are undoubtedly many operators and paper mill engineers who will disagree violently with some of the contentions to follow. If this paper results in the stimulation of constructive thinking with regards to various operating refinements, and possibly to changes in fundamental principles of paper manufacture, it will have served its purpse.

Before proceeding with the technical aspects of paper manufacture, it might be well to reflect for a moment on the achievements of our Industry during the past several years. Undeniably the recent war lent a great deal of emphasis to the development of specialty grades and the design of novel equipment to meet the needs of our armed forces. Whether we have progressed as swiftly as other industries, is a matter of conjecture. The radio industry for instance, with its development of FM, television and the allied science of radar, is an excellent example of what can be accomplished when fundamental research and development are fully utilized.

Before discussing the manufacturing techniques of facial or dry-creped tissue, it would seem desirable to first list a few of the prerequisites of that grade of paper. They are, not necessarily in order of their importance: Softness, strength, absorbency and sheet appearance. It would perhaps be helpful to list what we consider to be contributors to quality factors. These are, and again not necessarily in the order of their importance: Stock furnish, pulp preparation, condition of machine clothing, drying conditions, stretch characteristics and generally the creping, calendering or chemical treatment of the sheet.

Before going to the mechanics of operation, we must first recognize that aside from the purely individual requirements of each mill, there is a general division created by the integrated and non-integrated mill. Aside from the matter of economics, each type of operation has its own advantages. The integrated mill can produce pulp which

L. P. THOMPSON

Presented at the May 3rd meeting of the Black-Clawson Shartle Dilts Lecture Course.

more nearly meets its own operating conditions and thus eliminates a certain amount of mill treatment. The non-integrated mill may take advantage of specialty grades of pulp and, combined with good batch and blending operations, produce a product which may have certain features not incorporated in the sheet manufactured by an integrated plant.

It is my opinion that in all cases, stock being prepared for the production of facial tissue should be treated as little as possible. With few exceptions, the mechanical preparation of stock only serves to help us meet the desirable quality factor of appearance. It has the serious disadvantage of hardening the sheet.

Furnish preparation, stock consistency, freeness control, proper regulation, mixing well design and sufficient pumping capacity, are essential to assure the furnish reaching the paper machine ready to do the job. Assuming that stock has been prepared to the best advantage and in adherence with good operating practices, we can pass to the paper machine operation without further comment.

The conversion of paper stock into the finished sheet begins at the flow box. The type and design of the flow box and inlet is one on which more time and engineering effort has probably been placed than any other single item connected with the machine proper. Basically there the two types: Static head and pressure inlet. The pressure inlet delivers fibers to the wire in such a manner as to form what is known in the Industry as a directional sheet. Because of this action, certain inherent softness is imparted to the sheet. There is a substantial loss of cross direction strength and this is a matter of serious consideration with many manufacturers. The static head flow box is incapable of producing a rich, uniform sheet appearance. It does result, however, in a well-balanced sheet, relatively free from dust and equally strong in both directions. There is no question that the ideal sheet of tissue will be developed when paper makers and machine builders have mutually solved the problem of producing a sheet having the appearance given by the pressure inlet and the strength factor imparted through the use of the static head type of inlet.

The length of the Fourdrinier wire, the table-construction, use of forming boards, various doctor arrangements and type of supporting rolls are again largely a matter of the individual preference of an operator. Generally speaking, the wire should not be any longer than is necessary to form the sheet. The majority of the wires on tissue machines are too long. The use of the dandy roll as a means of supporting the wire has been developed rapidly during recent years. This is particularly true of high-speed operations. They have the advantage of removing very little water from the sheet while it is being formed. Unlike the solid table roll, it does not carry water and, as a result, causes fewer sheet interruptions.

The couch rolls, both top and bottom, are an extremely interesting study and might well be in the subject of a compete paper. Bottom couch rolls are basically of two designs: Plain and grooved. There are many types of grooving, some operators have even covered the grooved roll with Fourdrinier wire. The advocates of the grooved couch insist that it makes for better pick-up at high speeds and greater water removal. Many operators prefer the solid couch roll because the use of pressure at the couch nip supplements the press section in the mechanical removal of water, a feat which cannot be accomplished with the grooved couch. With the proper angles of top felt approach and take-off, no pick-up difficulties are experienced, even at substantially high speeds. The steam costs on two identical machines, one equipped with a grooved couch and the second with a solid couch, was found to be decidedly in favor of the solid bottom couch roll. The density of the rubber-covered top couch will, of course, depend upon the type of bottom couch used. Grooved couches demand a softer top roll.

It is in the press and dryer section of the Yankee Fourdrinier machine that much of the difference between the manufacture of facial tissue and other grades of paper begin. The employment of two felts, top and bottom, is an almost accepted standard in the Industry today. I favor the use of the shortest top and bottom felt compatible with safe machine operation. For example, actual tests on a 40-foot pick-up felt versus an 80-foot pick-up felt indicated to us that the shorter felt was the more desirable from nearly every angle. A short wet felt, properly conditioned, is certainly more desirable than the long one which is initially expensive and difficult to put and keep on the machine. We can pass over the subject of the press section by merely saying that the suction press is a "must" for maximum operating efficiency. The type and design of the suction press is a subject within itself and one on which the machine builders as a whole have done an excellent job.

The pressure roll is perhaps the most critical piece of equipment incorporated in the machine proper. Slight variations in crown, surface imperfections or slight pressure deviations can result in substantial quality and production losses. At the risk of disagreement, I would say that there is no known formula for establishing pressure roll crown. It seems of necessity, to be a "cut and try" operation. Factors influencing the operation of a pressure roll are: Construction of roll, density of covering, type of pick-up felt used, dryer surface, draws, angle of lead-in and moisture content of the sheet going to the dryer.

The Yankee dryer is undoubtedly the most expensive and difficult piece of equipment to replace on the paper machine. In recent years there has been considerable experimental work done with Yankee dryers. Both the welded steel and cast dryers of the spoke type, having small pressure chambers, are rapidly gaining favor. Because of transportation limitations, the Industry of this country has necessarily been limited to 12-foot dryers. I believe that the larger dryers, such as are made and used in foreign countries, would be beneficial to an operation. Aside from the production factor, the larger dryer results in lower surface temperatures making for safer operation and preventing forced drying.

The bonnet or hood over the Yankee dryer means a great deal more than the removal of moisture vapor. The vapor absorption system, which incorporates the introduction of warm air across the dryer surface, is one of the most valuable pieces of equipment used in connection with the manufacture of facial grades. Tests have established the fact that a vapor absorption system can add from 20-30 percent to total drying capacity. Because of lower dryer temperatures, the operation is a safer one. We are still doing extensive experimental work in connection with our vapor absorption systems and believe that there are ample opportunities for improvement in this phase of the operation.

Creping, calendering, plying and rewinding are factors in the production of tissue and there are several methods equally as good. The design of this equipment must take into consideration the requirements of the end product and the converting facilities available to the individual mill.

I have tried to discuss as briefly as possible, what I believe to be the more pertinent facts regarding the production of dry-creped paper. The benefits of a paper so broad in scope, must come from group discussion. A quick examination of manufacturing techniques, I am sure, will reveal that we have continued to incorporate certain features into our equipment, because it was traditional to do so. Often these items are in direct violation of good engineering standards or even the fundamental laws on physics or other sciences. I am in hopes that our thinking will not be limited to minor changes in structural design alone, but that generally, we will direct our thoughts to the consideration of basic improvements in fundamental operating principles as well.

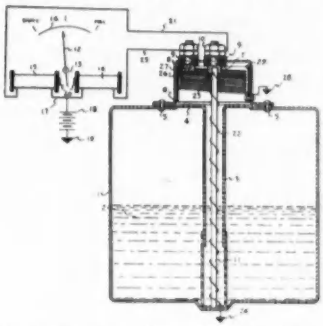
Patent Abstracts

● ***In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information to our readers are included herein.***

Issued Dec. 21, 1948

2,456,617 — Liquid level indicator. Lyndon W. Burch, Detroit, Mich.

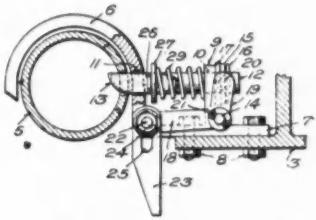
A liquid level indicator comprising, in combination with a receptacle, a cap mounted on said receptacle, an insulating rod extending from said



cap vertically into said receptacle, a conductor supported along said rod and having a temperature coefficient of resistance, a coil mounted in said cap, two solenoids connected respectively to said conductor and said coil, a movable indicator mounted to be moved by said solenoids, and means for passing current through said conductor, coil and solenoids and connected to said solenoids in a manner to cause them to act oppositely on said indicator.

2,456,646 — Safety device for hoists. Julian E. Patterson, Brownfield, Tex.

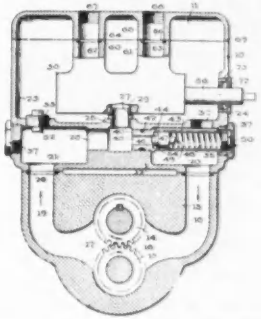
In a hoist having a platform, a leg having its upper end pivotally attached thereto on a horizontal axis and adapted to swing by gravity to a vertical position, a bracket attached to said platform at a point thereon spaced from said axis and having a flange engaging said leg to limit upward



pivotal movement thereof, a latch member movably mounted on said bracket, a spring arranged to move said latch member into engagement with said leg to hold said leg in locked position adjacent said bracket, a pivotally mounted bell crank lever arranged to move said latch member, and a finger carried by said bell crank lever and extending below said platform for engagement with the ground to retract said latch member when the platform is lowered.

2,456,651—Tank unit with submerged valve and external pump. Herbert H. Schmiel, Cleveland, Ohio, assignor to Hydraulic Equipment Co., Cleveland, Ohio.

In a pump, valve and tank package unit, in combination, a cast metal tank having a removable side wall, a chamber cast integral with the bottom wall and having a port facing said side

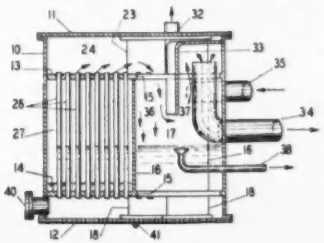


wall, a pump mounted on the outer side of the bottom wall and having an inlet passage extending through said bottom wall and a discharge passage extending through said bottom wall and into said chamber, a control valve housing mounted on said removable side wall and having a "hoist" port, a waste discharge opening into the tank and an inlet port positioned to be registered with said chamber port when the wall is secured to the tank.

A reservoir for a hydraulic hoist system comprising an open sided tank, means for attaching a pump to the outer surface of a wall of said tank, a cover for the open side of said tank, a control valve housing attached to said cover and having a port opening therethrough, a port in said tank connected to the pump discharge, a port in said housing for the valve inlet, said last mentioned two ports being so positioned that they register when the cover is applied to the tank.

2,456,732—Combined evaporator and boiler. John E. Pottharst, Jr., New Orleans, La.

A unitary evaporator structure comprising an



outer enclosure, a bank of tubes in which a supply of the solution to be evaporated is maintained, a heating chamber through which said tubes extend, a second bank of tubes extending through said chamber and through which tubes hot gases are caused to travel, a baffle extending upwardly from the floor of the heating chamber and separating the lower portions of the two banks of tubes, means for maintaining a supply of liquid in the portion of the chamber walled off by the baffle and surrounding the second bank of tubes, which liquid is boiled by the hot gases and the steam thus generated flows over the baffle and evolves vapors from the solution in the first bank of tubes, means for withdrawing from the evaporator the vapors thus elvolved, and means for withdrawing from the chamber the condensate from the steam.

2,456,671 — Flexible material with wrinkle-textured coating. Nathan T. Beynon, Dayton, Ohio, assignor to New Wrinkle, Inc., Wilmington, Del.

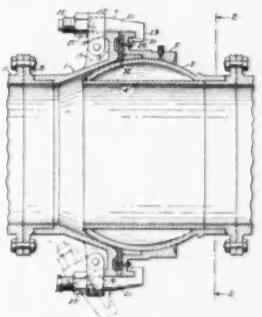
The method of manufacturing flexible, wrinkle-coated materials comprising the steps of mixing at room temperature 100 parts by weight of unsaturated fatty oil with varnish solvent and from 10 to 50 parts by weight of aqueous rubber latex, said rubber being selected from the group consisting of butadiene styrene copolymer, butadiene acrylic nitrile copolymer, and neoprene; applying the mixture thus obtained to a base material; and subjecting the coated material to drying, at substantially 130° F. for approximately 30 minutes and then at substantially 180° F. for a period of from about 30 to 60 minutes.

2,456,670—Cellulose compound wrinkle composition. Nathan T. Baynon, Dayton, Ohio, assignor to New Wrinkle, Inc., Wilmington, Del.

As a new composition of matter, a wrinkle drying coating composition consisting of a conjugated double-bonded fatty oil and a cellulose compound selected from the group consisting of cellulose acetate, ethyl cellulose, and nitrocellulose cold-mixed in proportions of 100 parts by weight of said oil to from 10 to 50 parts by weight of the cellulose compound.

2,456,744—Universal pipe coupling. John G. Sjoberg, Oakland, Calif., assignor to Pacific Coast Engineering Co., Alameda, Calif.

In a universal pipe coupling, a section; a plurality of bolts, each terminating at its head

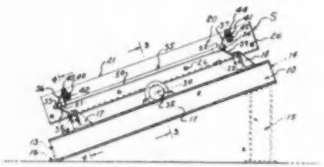


end in a hook and having its tail end threaded, a tightening nut threaded on each bolt; and means pivotally anchoring said bolts to said section at spaced peripheral locations, said means

including a lug for each bolt pivotally secured to said section at its prescribed location, such lug having a passage therethrough for slidably receiving a bolt to permit arbitrary positioning of the same in such lug with its center of gravity to one side or the other of the center of said lug, preliminary to assembling said section in said coupling.

2,456,791—Vibrating screen. Arthur W. Lippmann, Milwaukee, Wis., assignor to Lippmann Engineering Works, Milwaukee, Wis.

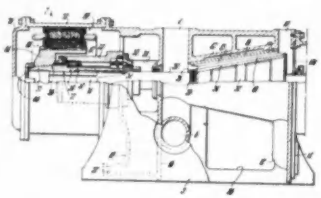
A vibrating screen comprising a base frame, a power driven eccentric shaft journaled on said base frame, a vibratory screen body supported



substantially entirely upon said eccentric shaft and actuated thereby, and a stabilizing device for connecting the ends of the screen body with the ends of the base frame including a longitudinally extending floating bar, upstanding brackets secured to the base frame having supporting blocks, brackets secured to the screen body having supporting blocks, substantially V-shaped leaf springs having their opposite ends secured to the blocks and means clamping the bight portions of the springs to the terminals of the bar each of the bight portions extending toward the same end of the screen.

2,456,883—Jordan apparatus. William Messinger, Philadelphia, Pa., and Dwight E. Jones, Pittsfield, Mass., assignors to E. D. Jones & Sons Co., Pittsfield, Mass.

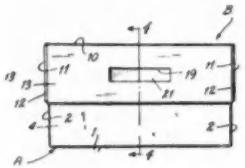
A unitary self-contained motor-driven Jordan apparatus comprising in combination, a supporting casing having forward rotatable bearing means and a conical bore in axial alignment



therewith intermediate its forward and rear ends, a motor stator secured to the rear end of the casing and entirely supported thereby, a hollow rear bearing support secured to the rear end of the casing disposed concentrically of said motor stator spaced inwardly thereof and terminating intermediate the ends of said stator, a quill within said bearing having an outer end extending beyond the outer end of said bearing support and provided with an axial bore, separate bearing means adjacent said bearing support rotatably supporting said quill, a motor rotor around said bearing support within and operably related to said stator having a portion secured to the outer end of said quill, a single elongated main shaft having a tapering plug supporting portion intermediate forward and rear ends thereof, forward and rear ends of said shaft disposed in said forward bearing means and bore of said quill, said bore and rear end of said main shaft therein provided with complemental angularly disposed faces whereby said shaft and quill are relatively non-rotatable and the shaft may be withdrawn from said quill, cooperating blading carried by the conical bore of the casing and plug supporting portion of the main shaft, said shaft being entirely supported in the forward bearing means and quill, and means at the forward end of the casing adapted to move said main shaft axially.

2,456,841—Container. Fred L. Rushing, Tampa, Fla., assignor to Gaylord Container Corp., St. Louis, Mo., a corporation of Maryland.

A shipping carton comprising an upwardly opening body and a removable and replaceable self-locking slip cover therefor, said body includ-

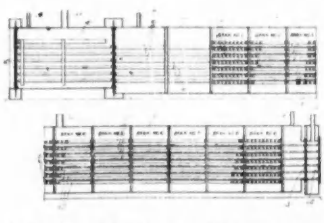


ing upstanding end wall panels having hand hole openings therethrough and upper marginal flaps folded downwardly on the inner sides of said panels extending to the bottom thereof and covering said openings, said flap cover including depending rim panels having hand holes therethrough opposite said openings and lower marginal flaps folded upwardly on the inner sides of said rim panels over the hand holes therethrough, said lower marginal flaps having inverted U-shaped slits providing thereon opposite said hand holes upwardly and inwardly inclined locking tongues adapted when said cover is slipped over said body to snap into the openings in the wall panels thereof with their upper ends in abutting relation to the upper edges of said openings and adapted to be disengaged from said openings by inserting the fingers upwardly between said wall panels and said upwardly folded marginal flaps and pressing said tongues outwardly clear of said openings.

Issued Dec. 28, 1948

2,457,116—Vacuum drying. John M. Baer, Chicago, Ill., assignor, by mesne assignments, to Guardite Corp., Wilmington, Del.

The method of drying a moisture-containing product which comprises substantially removing



air therefrom and replacing it with an atmosphere of steam at low absolute pressure, introducing the deaerified product in successive increments under vacuum to a drying zone, supplying an atmosphere substantially of superheated steam, moving the product in increments through the zone in a predetermined course concurrently with a surrounding stream of said superheated steam in contact therewith while subjecting the product to intense radiant energy on all sides from a source adjacent the product other than the superheated steam in contact therewith, then moving the product countercurrent to another stream of superheated steam introduced into the drying zone from an outside source to complete the drying, simultaneously introducing succeeding increments of the product concurrently with succeeding portions of the first stream of steam, and removing both currents of steam together centrally of the drying zone.

2,457,108—Adhesive and method of making. Chester L. Baker, Narberth, and Robert H. Sams, Upper Darby, Pa., assignors to Philadelphia Quartz Co., Philadelphia, Pa.

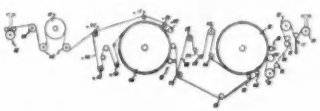
In the manufacture of dry-mix adhesives, the process which comprises mixing a colloidal clay with a concentrated sodium silicate solution having a ratio of Na_2O to SiO_2 within the range of about 1:1.5 to 1:4, the clay being in amount sufficient to produce dehydration of said silicate at least to a semi-solid state, mixing in a vegetable protein in a quantity at least equal to the weight of the clay in the mixture and bringing the water content to within the range of from 5 to 47.5 per cent by weight to form a dry-mix adhesive which, when added to water, forms a final adhesive having an operating life substantially longer than that of an adhesive of similar composition formed directly from said silicate solution without passing through said semi-solid stage.

2,457,357 — Novel adhesive product and process of making same. James E. Fenn, Baldwin, N. Y.

An adhesive comprising the reaction product of the concentrated waste liquor of the sulfite pulp process and phosphoric acid equivalent to 0.5% to 3% phosphoric acid of 75% H_3PO_4 based on the liquid basis of the liquor, where the concentrated waste liquor of the sulfite pulp process and the phosphoric acid are the sole reactants.

2,457,433 — Apparatus for coating paper. William Barrett, International Falls, Minn., assignor to Minnesota & Ontario Paper Co., Minneapolis, Minn.

A device for coating paper which comprises means for passing a web forwardly, a cylindrical backing means carrying the web of paper, a coat-



ing unit disposed adjacent the backing means and positively driven means for holding the coated web in close contact with the backing means surface after the coating material had been given a preliminary set by heat drying during its passage over a portion of the backing surface means, said including a resilient surfaced roll which contacts the web of paper upon the backing means and positively driven means for holding the web in close contact with backing means being located a considerable distance around the periphery of the backing means in the direction of movement of the web from the position of the coating unit,

MILLS

(Continued from page 16)

Fort Edward Safety Banquet

GLENS FALLS, N.Y. — The presentation of plaques highlighted the annual safety banquet of the Fort Edward plant of the Marinette Paper Co. in the Queensbury hotel on May 18. The finishing department, which had a "perfect" record, was represented by Russell Jones, superintendent, and Carl Lanphear, Julius Loding, Harvey Baker and John Kloss, foreman.

Other departments which had a record of one year without a lost time accident, but not classified under production, and their representatives, were: Bleach plant, George Roberts; records and stores, Paul Roberts; steam plant, James Zumbrunnen; electrical, Cyril Eggleston; consumers' representative, Samuel Greenwood; office and purchasing, Valdor Clark and Charles Kalmbach; personnel, Kenneth Miller.

Next best, but having lost-time accidents, were: Shipping and pulp handling, Rozelle Abbott; pulp preparation, Charles Caruso; and service shop and railroad, Stewart Farquhar.

The presentations were made by John B. Hay, general manager of area plants.

Philip Dickinson of Hudson Falls received a plaque in recognition of his quick thinking which saved a fellow worker from serious injury. Mr. Dickinson freed Leo Danahy from a rewinder in which he had caught his hand, with a result that Mr. Danahy suffered comparatively minor injuries. Charles McGinnis of Albany, safety engineer of the Employes Mutual Liability Corp., made the award.

Russell Knights of Hudson Falls was given a framed scroll making him a charter member of Wise Owls Club, an organization of men who might have suffered blindness had they not followed safety rules and worn goggles at their work. George Clossay, assistant personnel manager, who presided as toastmaster, made this award. Mr. Clossay said the organization was formed in a machine shop in Massachusetts and is now sponsored by the Ass'n. for the Prevention of Blindness. Mr. Knights' close call came when a wire under tension he was cutting on a bale snapped across his goggles.

J. L. Ober of Chester, Pa., vice-president in charge of production of the Scott Paper Co., of which Mariette is a part, spoke and commended the production and safety records of the firm and gave an analysis of the paper industry today. He pointed out that at the Fort Edward plant lost-time accidents have dropped from 36 in 1946 to seven in 1948. There were 16 in 1947 and there have been only two thus far this year. He pointed out that this sort of thing doesn't just happen; it represents the day-in-day-out accident-prevention efforts of all personnel.

Mr. Ober presented a certificate to Daniel Sheehan of Fort Edward, chairman of the safety committee, in recognition of his group having the second best record of all Scott plants.

Harrison F. Dunning, also of Chester, and general manager of all Scott mills, was introduced and spoke briefly.

CZ Forestry Manual

PORT ANGELES, Wash. — The Crown Zellerbach Corp. has released to its wood suppliers an eight-page booklet on forest practice policy, encouraging sound cutting practices among farmers and other woodland owners. The booklet is not available for general distribution, according to Robert Brandes of the company's forestry division, being aimed directly at the firm's own suppliers.

Westvaco Advances Williams, Jr.

COVINGTON, Va. — E. Crawley Williams, Jr., general superintendent of the West Virginia Pulp & Paper Co. paper mill here, has been promoted to assistant manager in charge of production. Promotion of Mr. Williams gives General Manager Paul B. Lacy two direct assistants: Mr. Williams, in charge of production, and Raymond C. Crush, in charge of administration.

Pond N. F. Candidate

OTTAWA—James Pond, former president of the Grand Falls local of the Papermakers' Union, has been named Progressive-Conservative candidate in the federal election for the Newfoundland riding of Grand Falls–White Bay. Mr. Pond is the first Newfoundland candidate to be named for the federal elections in Canada being held June *27*.

Taggart Employes Picnic

CARTHAGE, N. Y.—About 550 employes of the bag and paper mills of the West Carthage branch of the Taggart Corp. attended a picnic at the Rod & Gun Club at Cold Spring park May 15.

Andrews Assay Aspirant

NEW YORK—James J. Andrews, head of the salvage division of the International Paper Co., was nominated by President Truman on May 24 to be superintendent of the United States Assay Office here.

Obermanns, Chairman

ERIE, Pa.—Dr. Henry E. Obermanns, research chemist at the Hammermill Paper Co., was elected chairman of the Erie Section of the American Chemical Society, at a meeting held recently at Villa Maria College.

Howard Smith Cuts Directorate

OTTAWA—Howard Smith Chemicals, Ltd., of Canada has decreased its directorate from four to three members.

Faulkner DMA Contest Judge

NEW YORK — Richard Faulkner, assistant sales promotion manager of the International Paper Co., will serve as a judge of the 21st annual Direct Mail Advertising Contest sponsored by the Direct Mail Advertising Ass'n. The contest covers direct mail advertising produced between September 1, 1948, and August 31, 1949.

Good Samaritan Trustees

WATERTOWN, N.Y.—David C. Knowlton, president of Knowlton Brothers, Inc.; Abe Cooper, president of the Bagley & Sewall Co.; and Edward F. Tucker, vice-president, secretary and treasurer of the Stebbins Engineering & Mfg. Co., have been elected trustees on the board of the House of the Good Samaritan.

Milmont Fibreboard, Ltd.

MONTREAL — Milmont Fibreboard, Ltd., has been incorporated with authorized capital of 10,000 non-cumulative redeemable five percent preferred shares of $100 par value and 10,000 common npv shares.

Pause for Improvements

PORT MELLON, B.C.—The Sorg Pulp Co. mill has resumed operations after a ten-day shutdown to permit installation of a new turbine of 3,000 kw capacity.

Flambeau Chicago Office

CHICAGO—The Flambeau Paper Co., of Park Falls, Wis., has opened a sales office in suite 1418 at 202 South State street. Donald R. Kimbark is in charge.

Ransom Plant Resumes

RANSOM, Pa. — The National Paper Corp. plant here resumed operation on May *23*, following a shutdown of several weeks duration.

ASSOCIATIONS

PIA Committee Visits Paper Mills —Studies Paper Damage Losses

NEW YORK — In connection with a study aiming to develop improved methods of paper handling from the mill to the press, the Printing Industry of America Materials Handling Research Committee, under the chairmanship of Elliott Donnelley, of R. R. Donnelley & Sons Co., Chicago, recently visited the St. Regis mill at Deferiet, Carthage, N. Y.; the International mill at Corinth, Palmer, N.Y.; the West Virginia Pulp & Paper Co. mill at Mechanicville, N. Y.; and the Gould Paper Co. mill at Lyons Falls, N. Y., spending four days in a detailed study of methods of paper wrapping, car loading and unloading, storage and various other aspects of paper handling. A test loading of one car was made and the committee observed conditions in the car during switching operations.

Valuable data were obtained by members of the committee as a result of investigations and test shipments. This data is being accumulated for a report to the industry, now in prepara-

(Continued on page 28)

ASSOCIATIONS . . .

(Continued from page 27)

tion, which will recommend correct methods of paper handling.

The committee's investigation reveals that there is an urgent need for standard procedures for handling paper in order to avoid damage. The committee's report will go into such items as standard specifications for skids, standard method of wrapping and shipping and all other aspects of paper handling.

A traffic sub-committee under the chairmanship of Harold Hansen, of the R. R. Donnelley & Sons Co., held its first meeting during the four-day session. The committee has several sub-committees working on the preparation of reports on other subjects relating to materials handling. Present at the committee meetings, part of which were held at the Hotel Woodruff at Watertown and at the Gideon Putnam at Saratoga Springs were: Elliott Donnelley, chairman, R. R. Donnelley & Sons Co.; C. C. Schmieding, Crowell-Collier; Roland Lewis, Rumford Press; Howard H. Dana, Curtis Publishing Co.; Laurence Higgins, Conde Nast Press; Wayne E. Crotty, Time, Inc.; Larry Ford, A. L. Garber Co.; J. H. Molitor and C. F. Wilson, Art Color Printing Co.; L. E. Smith and W. McKowen, Meredith Publishing Co.; Charles A. Conrard, H. F. C. Brown, Arthur H. Johnson, and O. H. Somers, Western Printing and Lithograph Co.; W. A. Anderson and Daniel H. Campbell, U. S. Government Printing Office; W. L. Hepburn, Al Stevens, Ray Stewart, and H. M. Hansen, R. R. Donnelley & Sons Co.; W. L. Thornton, Jr., Kimberly-Clark Corp.; J. W. Quinlan, Stephen E. Slocum, Benton R. Cancell, and H. R. McRorie, St. Regis Paper Co. W. J. Bailey and W. L. Shaw, West Virginia Pulp & Paper Co.; D. A. Moran and William R. Maull, Mead Corp.; H. Ignatius and F. W. Krumpe, International Paper Co.; and Carl M. McCort, Consolidated Water Power & Paper Co. B. J. Taymans, assistant general manager of PIA, is serving as secretary of the committee.

Empire State TAPPI

BOLTON LANDING, N. Y.—The three-day Spring Meeting of the Empire State Section of TAPPI opened June 2 at the Sagamore hotel with a record attendance. Theme of the occasion was "Conservation of Material."

The opening day was given over to registration; sports, including golf, tennis, horseback riding, swimming, fishing and boating; a cocktail party, dinner, motion pictures and a frankfurter roast and community singing.

June 3, the program calls for an address by Morris N. Cohn, consultant, Special Committee in Pollution Control, Joint Committee on Interstate Operation, entitled "New York State's Pollution Control Program," followed by a panel discussion of "Pollution Control in the Paper Industry," with H. A. Spencer, director of research of Knowlton Bros., presiding. At the same meeting, Dr. V. L. Harper of the Northeastern Forest Experiment Station is to speak on "The Wood Supply Situation in New York State."

June 4 the program calls for an address on "Getting the Dollar Value from Your Instruments," by W. S. Younker, sales manager, pulp and paper industries, of the Foxboro Co., and one on "Instrument Application," by Hugh Lavery, assistant technical superintendent of the Corinth, N. Y., mill of the International Paper Co.

Mill visits are scheduled for the afternoon of June 3, and a business session is set for June 4, with a banquet the evening of that day. Mill visits have been arranged to Finch Pruyn Co., Glens Falls; Marinette Paper Co., South Glens Falls; International Paper Co., Corinth, and their Research Division at South Glens Falls; Warrensburg Pulp and Paper Corp.; Imperial Paper and Color Co., Glens Falls; and The Sandy Hill Iron & Brass Works, Hudson Falls.

GUMMED INDUSTRIES ASS'N AT PKG. EXPO.

More than 2,714 visitors to the Gummed Industries Ass'n. exhibit at the recent AMA Packaging Exposition got the answers to some of their closure problems when they took away with them copies of GIA's new instruction manual, "What Every Shipper Should Know About Proper Package Sealing," and the large wall chart illustrating the "Eight Steps to Perfect Closure." . . . The Seal It Right with Gummed Tape, slide-film packed the aisles.

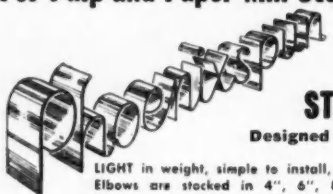
Hudson River Div. TAPPI

PLATTSBURGH, N. Y. — Plans for the 1949 Spring meeting of the Empire State Section of TAPPI, June 2-4, at Bolton Landing, N. Y., were outlined at a meeting of the Hudson River division conducted here last week.

More than 70 members attended the meeting at Plattsburgh, the last division meeting of the season. Raymond Wiles of the Research Division of the International Paper Co., presided. J. C. Julson, general manager of the BFD division of the Diamond Match Co.,

(Continued on page 32)

For Pulp and Paper Mill Stock and White Water Lines



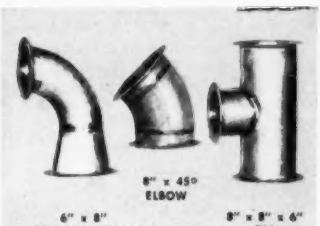
Smoothflow

STAINLESS STEEL ELBOWS

Designed for Stainless Steel and Transite Pipe

LIGHT in weight, simple to install, with smooth inside curvatures, SMOOTHFLOW Elbows are stocked in 4", 6", 8", 10" and 12" sizes. Standard vanstone flanges, split type, cast iron back-up flanges with standard bolt holes. Tees, reducers, special fittings, made to special order.

WRITE for illustrated folder and dimension data.



PHOENIX PRODUCTS CO., *Metal Spinning Division*

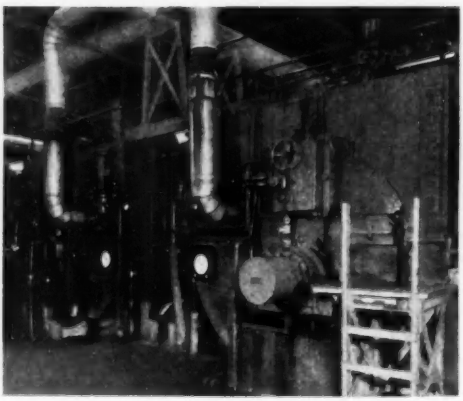
4721 N. 27th STREET MILWAUKEE 9, WISCONSIN

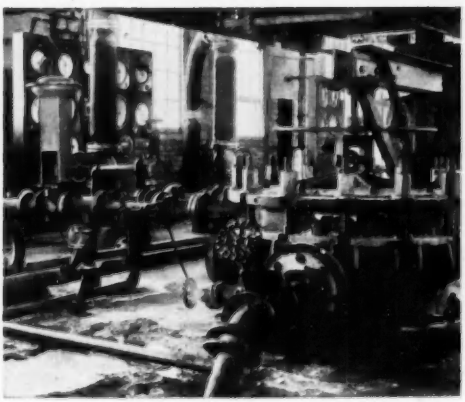
Technical Advice...
Laboratory Research...
Plant Assistance...
PREPARED SIZE +
Uniform Quality...
Prompt Deliveries...
HERCULES

Let these **4 TAYLOR** *pay for themselves in lower*

1 Pulp Grinder. Nobody buys Taylor Instruments because they're pretty gadgets. But if you want to save money—start with Taylor Temperature Control on your grinders! You'll get maximum production, consistently high quality, uniform color, full tensile strength of pulp. You'll also get a minimum of short fibres, "flour pulp", or stone fracture. Over 500 Taylor Grinder Control Systems are now in successful use. Your Taylor Field Engineer will be glad to show you how these accurate automatic control systems can help you!

2 Pulp Digester. You invest a lot of time, labor and material in every digester charge. To make that investment pay off in No. 1 pulp (tops in color, bleach-ability, fibre strength and freeness and a minimum of rejects) you need a closely controlled time-temperature-pressure schedule. Taylor Instruments control temperature until chips are thoroughly saturated, then increase it to pre-determined maximum. They hold pressure precisely to the schedule, then automatically cut it to blowing pressure determined by your operator.





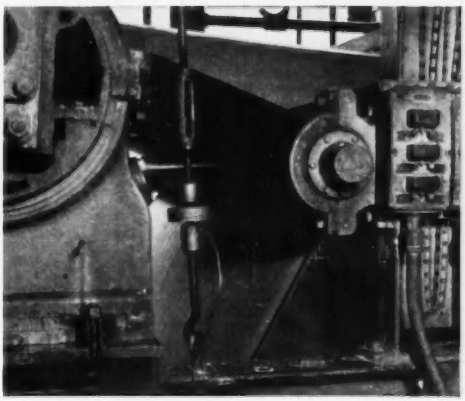
Taylor Instruments **MEAN**

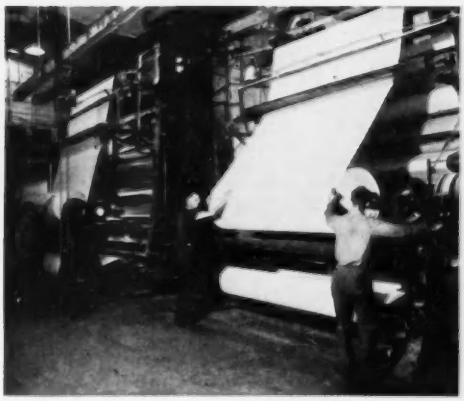
CONTROL SYSTEMS

costs and higher quality!

3 Press Roll. With Taylor Instruments on the press sections of your paper machine you can carry the maximum permissible roll pressures needed for each set of operating conditions without damage to sheet, felt or roll. You'll get more uniformity of sheet density, opacity and calipre at the lowest possible cost per ton. What's more, you'll remove water for 1/10 the cost of evaporating it from sheet on drier section of machine. We'll be glad to send you a list of satisfied Taylor Press Roll Control customers on request.

4 Calenders. For this last important step in quality paper making, we've built Taylor Instruments that indicate, record or control the actual nip pressures exerted on the compression pin between the top fulcrum lever and the top roll bearing. These instruments eliminate excessive pressures which cause bearing trouble, cut power consumption, lengthen life of intermediate rolls, and deliver a uniformly finished sheet. We'd like to show you which of these four Taylor Controls can save you the most money!





ACCURACY FIRST

Taylor Instrument Companies, Rochester, N.Y. and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

ASSOCIATIONS . . .

(Continued from page 28)

here, announced that the annual meeting of the New York-Canadian Division of the Superintendents' Ass'n. will be held at the Champlain hotel at Bluff Point in September.

James T. Coghill, vice-president of the Curlator Corp., a division of the Consolidated Tool Co., Rochester, N.Y., presented the history of the curlator.

The coefficient of friction for curlation remains at a fixed figure of 64 percent, the speaker said, regardless of pressures or quality of stock being used. If the coefficient is less than 64 percent it indicates that the pulp is sliding through the machine without any curlation of the fibres. He added that this slipping or sliding action will cause clogging of the curlator machine.

Mr. Coghill pointed out that sulphite varies in its ability to be curlated. Pulp from one of the Price Brothers' mills was much easier to curlate than pulp from another mill which was apparently made by exactly the same process, he said. The addition of either steam or as little as five percent of groundwood induces curlation on sulphite which would not curlate by itself, he reported.

Mr. Coghill invited mill representatives to bring ten-pound samples of pulp to Rochester to watch the effect of curlation on the laboratory machines. He asked that reservations be made in advance and said the plant is capable of handling two of these test runs per week.

N. C. Forestry Council

RALEIGH, N. C.—Establishment of the North Carolina Forestry Council, an organization designed to coordinate forestry practices in the State, was announced here on May 26 by Dr. R. J. Preston, Jr., director of the Division of Forestry at N. C., State College and secretary of the new organization.

The council is headed by Dr. C. F. Korstian, dean of the School of Forestry at Duke University, who was elected as its chairman. William Maughan of Durham, an official of the Cary Lumber Co., is vice-chairman.

The council's membership is made up of representatives of the North Carolina Forestry Association, State College Extension Service, College's Division of Forestry, Duke University's School of Forestry, the National Forests, the Southeastern Forest Experiment Station, the Southern Pine Assn., Appalachian Hardwood Mfrs. Assn., Southern Pulpwood Conservation Assn., and State Forest Service.

Objectives of the council as outlined in its constitution and by-laws are as follows: (1) The primary purpose of the Council will be to promote better understanding and coordination of forestry practices in North Carolina. (2) To provide a clearing-house, composed of an organized and representative group of foresters, for matters pertaining to the development and welfare of the forests of North Carolina. (3) To serve in an advisory capacity to all organizations and agencies requesting assistance in forestry matters pertaining to North Carolina. (4) To develop through round-table discussion and otherwise within the Council a better understanding of various forestry policies and programs that affect or will affect North Carolina.

Color Standardization

NEW YORK—Sectional Committee Z58 on Standardization of Optics, organized under the procedure of the American Standards Assn. in 1947 to consider standards in the general field of optics, recently held its second meeting. Subcommittees reported completion of proposed standards on nomenclature, and on specifications of color, and work underway on light sources.

Several draft standards on the specification of color have been prepared and circulated to interested persons by Subcommittee VII. The subcommittee also made the final changes in three drafted standards intended to supersede the American Wartime Standard Specification and Description of Colors, Z44-1942. These will be submitted to the sectional committee.

Amer. Pulp & Paper Mill Superintendents Association, Inc.
1949 Annual Convention
Coating Group Meeting Program
2:30-5:30 P. M., June 15
Haddon Hall Hotel
Atlantic City, N. J.

Chairman, B. E. Sooy, the Gardner Board & Carton Co., Middletown, Ohio. Moderator, A. C. Dreshfield, consulting chemical engineer, La Grange, Ill.

Panel Session—*Machine Coating Binders.* A series of short eight to ten-minute non-technical papers. Opening remarks and welcome, Introduction of moderator, B. E. Sooy. Remarks by moderator and Introduction of panel subject and panel members, A. C. Dreshfield.

"Casein as a Machine Coating Binder" H. O. Ware, Hercules Powder Co., Wilmington, Del. "Cooked Starch as a Machine Coating Binder" J. E. Killinger, Penick & Ford, Ltd., New York. "Enzyme Converting of Starches for Paper Coating Use" W. L. Craig, R. T. Vanderbilt Co., New York. "Alpha Protein as a Machine Coating Binder" Walter M. Bain, Glidden Co., Chicago. "Synthetic Rubber Latex as a Machine Coating Binder" E. K. Stillbert, Dow Chemical Co., Midland, Mich. Twenty-minute discussion period directed by moderator. Remarks by chairman. Ten minute recess.

* * *

"A New Coating Process Involving Ion Exchange" D. Robert Erickson, Graphic Arts Laboratories, Kalamazoo. "The Place and Future of Machine Coating in the Industry" E. R. Newcomb, John Waldron Corp., New Brunswick, N. J.

Mr. Erickson and Mr. Newcomb will cooperate in the presentation of their papers, and a practical demonstration of Mr. Erickson's revolutionary process will be given on machine coating equipment furnished by John Waldron Corp.

Question-and-answer period on Erickson and Newcomb papers directed by moderator.

Closing remarks and dismissal—Chairman.

Utility Joins "Trees"

RHINELANDER, Wis. — The Wisconsin Public Service Corp. has joined Trees for Tomorrow, Inc., President Folke Becker reports, and C. E. Kohlhepp, president of Public Service, has been elected a member of the board of directors. Previously, membership in Trees for Tomorrow, Inc., has been made up of ten paper mills in the Wisconsin and Flambeau valleys.

Commenting on the step taken by Public Service, Mr. Kohlhepp said, "Planting more trees and managing Wisconsin's forests will have a definite bearing on the capacity of this state's water table to meet the increasing requirements of its citizens. Forests help regulate stream flow by delaying runoff. They help maintain the efficiency of power dams by keeping silt from filling the river beds. Today these factors are highly important to Wisconsin because the headwaters of most of our rivers are located in the forested region of the North."

Wisconsin Public Service Corp. owns eight power plants on the Wisconsin river and is presently helping to develop two more.

P.PB & AT Div. UJA Dinner

NEW YORK—Key figures of the paper, paper box and allied trades division of the United Jewish Appeal raised "a record sum" at a dinner at Ambassador hotel on May 24.

Joseph M. Mazer, of the Hudson Pulp & Paper Co., one of the three chairmen of the industry's drive, welcomed the guests. Seymour Baum, of Ashland Paper Mills, Inc., and Joseph H. Eisenberg, of the Equitable Paper Bag Co., were the other two chairmen. Abraham Mazer, also of Hudson, and Jacob Sincoff were honorary chairmen.

Mr. Sincoff singled out the following for their "tireless work": Joseph H. Simon, Ace Paper Co.; George Stoll, Reliance Paper & Twine Co.; Joseph L. Greenberg, Acme Folding Box Co.; Max D. Thorner, Plaza Paper Box Corp.; Sidney H. Witty, Trinity Bag & Paper Co.; Joseph M. Kircheimer, New York Hanseatic Co.; and George S. Wise, George S. Wise & Co.

Making Safety Slidefilm

WEST SPRINGFIELD, Mass.—H. B. Goodrich, maintenance and safety engineer of the Strathmore Paper Co., who edits *Pulp & Paper Safety* for the National Safety Council states that "the paper manufacturing safety slidefilm script has been turned over to Mr. Gilmore of Rayonier, Inc., Hoquiam, Wash., for revision. This is a big project and time is needed to do the job properly."

Kaufman to NAWMD

NEW YORK—Ben Kaufman has been appointed public relations and publicity director of the National Assn. of Waste Material Dealers, Inc., effective June 1.

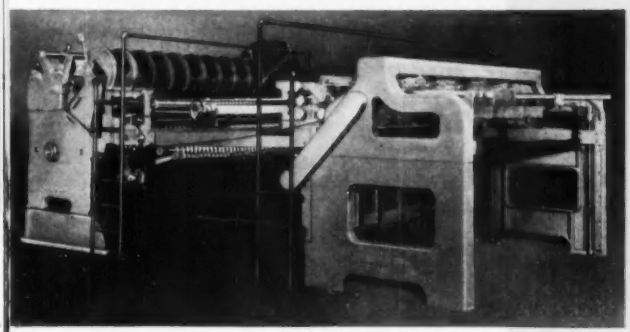
(Continued on page 31)

How to get new-mill production and economy from your old mills

If you need greater production efficiency and economy to maintain your profit position in today's buyers' market, here is good news.

At a fraction of the cost of a new mill, Clark-Aiken can rebuild your old mill to operate with practically the same speed, efficiency and economy as a new mill and, at the same time, deliver a better product.

We can rebuild any mill, regardless of make or age and guarantee faster production, improved quality, reduced maintenance and elimination of breakdowns. As an example, production of fine rag bond was increased to 325 feet per minute by rebuilding a mill originally intended for operation at 125 feet per minute—and quality of production was greatly improved, while idle time and maintenance were radically reduced.



The entire rebuilding operation, including complete re-alignment and strengthening of parts where necessary, replacement of worn or broken parts, installation of anti-friction bearings on all shafts, new-type, high-efficiency drives and clutches and new wet-end rolls with anti-friction bearings, requires less than three weeks production shutdown.

We'll be pleased to send you complete information and details of actual savings or a Clark-Aiken paper mill engineer will call to inspect your mills and offer estimates on rebuilding costs and guaranteed economies to be obtained.

Write, phone or wire

BIG SAVINGS IN SHEETING COSTS

The new Clark-Aiken Sustained-Accuracy Rotary Cutter and Clark-Aiken Sustained-Operation Layboy and Delivery are built for continuous single or multiple sheeting at paper travel speeds up to 700 feet per minute. Sheet length is accurately maintained and shut-downs, except for roll replacement and pile removal, are practically eliminated. As a result, production is increased 50% to 300% while broke is maintained well under 1/2 of 1%. Write for Cutter Bulletin 101 and Layboy Bulletin 201.

THE *Clark-Aiken* COMPANY

PIONEERING IN PAPER MILL MACHINERY IMPROVEMENT SINCE 1828

LEE, MASSACHUSETTS

ASSOCIATIONS

(Continued from page 32)

NPBMA and NPBSA

PHILADELPHIA—A. S. Daniel, treasurer of W. C. Ritchie & Co., Inc., Chicago, was elected president of the National Paper Box Mfrs. Assn. at the 31st annual convention of the Association in New York. For vice-president the members named Douglas T. Neale, president of E. J. Schoettle Co., Philadelphia. Henry J. Aemisegger, president of G. A. Bisler, Inc., Philadelphia, was elected treasurer and William R. Kreeger selected secretary. Next meeting of the association will be held at the Drake Hotel, in Chicago, May 14-17.

At the annual meeting of the National Paper Box Supplies Assn., held in New York, concurrently, Joseph C. Clark, general manager of Kupfer Bros. Co., New York, was elected president; Douglas T. Neale, president High Production Machine Co., Philadelphia, vice-president and Harry Edwin Roden, editor of *Shears,* secretary-treasurer.

SPCA Field Meeting

JACKSON, Miss. — A field meeting of the Southern Pulpwood Conservation Ass'n. is scheduled for June 7-8 at the Heidelburg hotel.

The meeting will open with a dinner at the hotel. E. J. Gayner, 3rd, vice-president and general manager of the Brunswick Pulp & Paper Co., Brunswick, Ga., president of the Association, will preside.

The evening program will include a panel discussion of the conservation work accomplished by the Association.

The meeting will continue June 8 with an inspection of pulpwood cuttings in the vicinity of Jackson, as well as types of hardwood control on large forest holdings. A barbecue luncheon for those attending the meeting will be served at Roosevelt State park near Morton, Miss.

Norian PTA Member

CINCINNATI — M. Norian of the Union Bag & Paper Corp., Chicago, has been admitted to membership in the Paper & Twine Ass'n., Secretary-Treasurer John L. Richey reports.

LABOR

Holyoke Union Contract

HOLYOKE, Mass.—A tentative agreement was reached on May 26 for a new contract in the Holyoke paper industry by the negotiating committee of the Eagle Lodge No. 1 and Local 226 IBPM with the committee of Holyoke paper manufacturers at a conference in the office of Harold T. Martin, labor adviser to the paper manufacturers. It must be approved by the signatory unions and manufacturers.

The present contract expired June 1, and in the meantime, the groups were to act on the proposed arrangement. (Details of this agreement were not available as this issue went to press.) However, it was learned from other sources that the present wage scale will be continued for another year. The unions had asked for a 10-cent-an-hour increase, and the manufacturers had proposed a five-cent-an-hour cut.

Eagle Lodge No. 1 was represented by Henry Wilson, Andrew Beaton and Edmund Brogle. Local 226 was represented by John Dupre, John Houlihan, Frederick Knowles and Evelyn Lowe. Representing the manufacturers were Henry Burgee of the Parsons Paper Co.; E. C. Reid, American Writing Paper Corp.; E. C. Tucker, Chemical Paper Mfg. Co.; and H. T. Martin.

The Wage Picture

NEW YORK—In a report to its membership, which accompanied a tabulation of wage comparisons in the industry, E. W. Tinker, executive secretary of the American Paper & Pulp Ass'n., said in part:

"As of May 11, the date of this report, ten general wage increases had been granted. Three were granted in the New England area, two in the Middle Atlantic, four in the Lake States, and one in the Central Zone. No increases had been reported from the Central States, Pacific Coast or the Southern Zone. This total number of increases is in sharp contrast with the figures of this time last year when over 50 wage increases had been granted. Most significant, too, is the amount of the increases of this year as compared with those of last year. The raises range from three to seven cents. However, we were advised that the seven-cent increase completed a round of negotiations which started in May 1948, and could not properly be construed as a 'fourth round increase.' Perhaps the greatest significance of this comparison, therefore, derives from the very few changes from the figures included in the previous compilation of February, 1949."

Wage Cut Rejected

HOLYOKE, Mass.—The Eagle Lodge of Papermakers and the Paper Mill Workers' Union, Local 226, on May 19 formally rejected a proposal by Holyoke paper manufacturers that they take a five-cent-an-hour pay cut.

Harold T. Martin, labor advisor to the manufacturers, said the five-cent cut proposed by the manufacturers still stands. The proposal by mill owners also suggested reducing paid holidays from six to three, and the proposal that extra workers employed as wire changes be cut from eight to six hours.

The unions have demanded a ten-cent-hourly pay boost.

President Henry Wilson of Eagle Lodge and Financial Secretary John Houlihan of Local 226 along with International Organizer William Kittell of Woronoco are negotiating for the unions, while F. C. Tucker of the Chemical Paper Mfg. Co., F. C. Reid of the American Writing Paper Corp., and Henry V. Burgee of Parsons Paper Co., represented the manufacturers.

CARLOADINGS

Canadian Carloadings

OTTAWA—Car loadings on the Canadian railways of woodpulp and paper dropped to 3,706 cars in the week ended May 14 compared with 3,950 cars in the previous week and 4,311 in the similar week last year ended May 15, the Canadian Government reports.

The Eastern Division accounted for 3,266 cars in the week ended May 14, as against 3,479 in previous week and 3,809 in same week last year, with the Western Division showing 440 cars, 471 cars and 502 cars in these same respective periods.

The cumulative total of such car loadings from the beginning of this year until week ended May 14 declined to 80,107 cars as compared with 85,254 cars last year in the similar period, with the Eastern Division accounting for 69,978 cars as against 74,459 last year and the Western Division for 10,129 cars compared with 10,795 cars a year ago.

TRAFFIC

Core Rates Up

On June 15, there will be an increase in the rating on cores for paper rolls when shipped by rail from the East into the North West Territory. The district covers points in Ontario, such as Armstrong, Port Arthur, Fort William and West Ft. William; some points in Iowa, Minnesota, Wisconsin and the upper peninsula of Michigan. The present rating is Class 5 (35 percent of the first class rate) and this is to be increased to Class 50 (50 percent). The increase will place the territory under the same rating on the item as now applies in the entire eastern section of the country.

The cores are used for paper rolls and are generally returned to the mill under an agreement with the consignee to ship "freight charges collect at destination". Since the paper mill pays the cost, the payee has the right to direct how the cores are to be returned. The use of the rating has certain tariff conditions that should be closely followed in order for the mill to avoid paying penalty charges due to the customer's failure to properly follow tariff instructions. The customer can be advised by the mill that the rules of the rail tariff are to be followed when cores are returned.

The rating covers various types of cores, for example: *Bare; covered with one-half inch paper; iron or steel, with or without flanges; paper or paper board; compressed pulp, with or without metal ends; wood. The weight required for each core is 25 pounds or over. They should be shipped in bundles or packages.*

The item is mostly shipped less-than-carload and this rating only applies

(Continued on page 36)

KEEP YOUR BELT "On the Beam"

with Rex Self-Aligning Idlers . . .

A FEW OF THE REX IDLER LINE:
Rex No. 55 Rubber-Covered Spiral Return Idler . . . creates an ever-changing point of contact to keep moisture, ice, abrasive and sticky materials from building up on the belt.
Rex Style No. 35 Impact Cushioning Idler . . . dual purpose rubber rolls cushion shocks at loading points . . . minimize belt rupture and lacerations.
Rex No. 32 Troughing Idler . . . is roller-bearing equipped, can be furnished with steel or gray iron rolls. Has no shelves or pockets to catch dust . . . is self-cleaning.
Rex No. T-6 Flat Belt and No. T-1 Return Idlers . . . are dead shaft type idlers. They are equipped for high pressure grease lubrication . . . have hydraulic type fittings.

● Off-center loading, side-wind drifting, warped frames, or uneven belt stretch won't bother your conveyor belts *if* you install a few Rex Self-Aligning Troughing Idlers.

These dependable idlers assure automatic belt alignment without the need for side-guide idlers that impose excessive belt edge wear. The idler roll assembly is so mounted on a roller-bearing turntable that any weaving of the belt away from the center line will swing the idler into an angular position and thereby automatically guide the belt back to the conveyor center line. Damage to belts from running off is eliminated.

The Rex Self-Aligning Idler design is completely flexible. The idlers are made to fit into any belt conveyor frame, and with any make of idler . . . important features that simplify installation and maintenance. With Rex, the belt can be run in either direction.

A Rex Idler Specialist will be glad to give you all the facts on the idlers that keep your belts "on the beam." Or, if you prefer, write for your copy of Bulletin No. 463. Chain Belt Company, 1605 West Bruce Street, Milwaukee 4, Wis.

CHAIN BELT COMPANY REX BELT CONVEYOR IDLERS

TRAFFIC

(Continued from page 34)

when the immediately preceding transportation of the filled cores from the mill was by rail freight service. The tariff instructs "each bill of lading and shipping order shall bear on its face a certificate in the following form, which must be signed by the shipper: (I) or (We) hereby certify that the cores covered by this receipt, which are being returned empty, were received by railroad freight service." The cores can be mixed with another commodity in transportation.

Those shipping to the mill carloads of scrap or waste paper and rags for the purpose of making new paper are permitted to use the rating applicable on the cores; the latter may be shipped loose in the car. The weight of the cores can't be used to make up carload minimum weight. The rate on the cores will be charged the lcl Class 50.

Paper Banana Wraps

Paper is one of the main items used in loading of bananas. Not only does it help to protect but also preserve the fruit from damage. It may be of interest to representatives of paper firms who supply the fruit buyer to call attention to this fact—that the paper intended for the above purpose in New York Harbor can be stored on the rail carriers' premises without charge. The free storage is allowed by the B&O, CNJ, DL&W and Erie at their stations in Jersey City, NJ; in Hoboken, NJ the DL&W; in Weehawken, NJ the Erie, NYC and NYO&W; in Meadows Yard, NJ the PRR.

Freight Shipment Tax

Repeatedly bills are presented in Washington to repeal the tax of three percent assessed on freight shipments. The penalty, as is generally known, was placed against the shipper in wartime. The tax was never fair to the shipper for it is linked to the 15 percent assessed against passenger tickets and the purpose of the later as advocated by the government was to discourage travel in wartime rather than as a source of revenue. Repeal of the freight tax has been and is constantly supported by those paying the bill. Those who introduce the bills must be given some credit for they have made sincere efforts. It is evident the government is unwilling to relinquish a rich source of revenue. When the tax will be repealed no prophet can predict. The tax however is detrimental and discriminates against the long haul shipper. Freight rates have increased 52 percent since the tax went into effect in 1942. This also increased the toll collected by the government. The tax was intended to be wartime excise and it is out of tune with peacetime shipments.

Motor Freight Hike

In the National Motor Freight Classification there will be an *excessive increase* on the rating of lunchboxes, paper or pulpwood, shipped *set up*, in barrels, boxes or crates. The increase, effective June 10, and the reason for it is hard to comprehend.

The basic reason for an increase is founded on one of two facts. (1) the carrier will claim the rating is too low in order to make a profit on hauls of the commodity, or (2) costs have risen to the extent where the revenue fails to pay expense of operation.

To secure relief, the carriers bluntly state the rating must be increased. As evidence, they support their request before the Commission and hearings with shippers with bundles of facts and figures, rate history exhibits, costs and revenue. The "evidence" may be biased to support certain facts and it may not give the true picture where the carrier is lax in control of operations.

In opposition to this excessive increase, the present ratings on the item are here contrasted with the advance effective June 10.

The classification rating on less-than-truckload is Class 1 (100 percent of the first class rate); truckload, 10,000 pounds minimum weight, Class 2 (85 percent). Instead of two separate ratings on the item, there will be one rate applicable on either less-than-truckload or truckload. This means that regardless of the amount of lading offered to the carrier, the item will be rated on an *any quantity* basis. This condition is rather odd, for the custom generally followed among carriers is to offer lower rates on truckloads. If the increase, in the face of rising costs, were advanced on truckloads to Class 1, the absorption of the additional 15 percent transportation costs may not prove a great problem to shippers who have become "experts" with these matters.

The new rating, effective June 10, will be Class 4t1, and *this means four times the first class rate or 400 percent.* The increased rating will apply in the East, South and West.

From 85 percent and 100 percent to 400 percent presents a problem for the shipper and for his interest the increase should be opposed. A complaint should be registered with the Commission and the request to have the rating docketed for investigation and suspension. The petition should bear this reference — *Supplement 22 to NMFC No. 9 MF-ICC 17, Item 12990-A, page 12, effective June 10, 1949.*

A complaint with the Commission means a hearing upon the lawfulness of the increase in rates for the transportation of the item in interstate commerce and the rights and interests of the public appearing to be injuriously affected. Generally, the Commission will postpone the effective date until the period of suspension is completed. The present ratings in the Classification remain in effect during the period.

First-class rates, with the increases granted to the carriers, require the shippers to pay high transportation costs. Can the carriers claim the present rates on this item are too low to realize a profit on hauls as justification to advance to 400 percent rates?

In opposition to the carriers' claim there are several points to the advantage of the item from the shippers' standpoint. For instance: It is light in weight, tough for wear and damages in transit are small, low in cost and extensively used by millions of adults and youth daily. It fills a need and is in constant demand, the item has a steady sale because the cost to replace is low. It is a source of revenue that the carriers should covet.

What justice then is there for the increased percentage?

Carriers have "stock phrases" that become overworked: "rate of return on investment too low," "rising costs of material, equipment, labor, service far overshadow shrinking profits." These "headaches" confront every business and to boost "sales price" beyond reason isn't the solution. The public reaction to an unreasonable increase is the refusal to purchase.

The carrier's "merchandise" is transportation service. To sell the service, he offers a sales price and this is the rate to haul. The rate must be reasonable to attract buyers.

There are types of lading the carriers do not want. They are compelled as carriers to haul what is offered unless the articles are forbidden in public transportation. There are certain "legal" measures used that will remove articles from transit and one of them is to boost the rate so high it is impossible for the mill to compete with a distant market.

One can't help wonder when the rating is boosted to 400 percent if the carriers want the article to move. This isn't much consolation to the shipper, for the rating will be out of proportion to the value of the item. There are many items whose transportation costs are equal to the sales value. When the cost to transport goes beyond the value then an investigation and adjustment are urgently needed for the reason that the cost to ship is added to the cost of purchase. Excess costs like these are the reason in some cases plants are forced to relocate in order to move closer to the market. The move can be avoided if the carriers show more consideration for the shippers upon whom they are dependent for revenue. It is true when a plant relocates a new industry is introduced into a new location, but it also works a corresponding hardship by the removal from the origin point.

One should not take too literally to "facts and figures" offered by the carriers as evidence necessary to justify an increase. Constantly the song is sung, one system of transportation will "price themselves out of business" and "driving traffic to a competitor." Even an industry which presents evidence due to "increased cost of transporta-

(Continued on page 38)

Can you think of any more markets for softer paper products made like this ?

You get better softening plus fire resistance in one low-cost treatment with Du Pont Sulfamic Acid

Here are just a few of the uses for softened paper and paper products which you can make *better* and *more economically* with Du Pont Sulfamic Acid. Just add Sulfamic Acid to the desired amine to get an Amine Sulfamate that softens your paper and also makes it fire-resistant—with a single treatment.

BETTER SOFTENING is assured—even at low humidities—because Amine Sulfamates are more effective over the whole humidity range . . . do not depend entirely on water pick-up.

RETAINS SOFTNESS! Paper softened with an Amine Sulfamate will not lose its softness—even after long periods of normal use. And it can be readily printed or glued. It can also be given *extreme* resistance to yellowing with a single modification of the Amine Sulfamate.

LOW-COST . . . EASILY APPLIED! Du Pont Sulfamic Acid is inexpensive, and added to amines, can be economically and uniformly applied from aqueous solutions by immersion or spray.

Where fire resistance without softening is required, the regular Du Pont Fire Retardants are recommended.

DU PONT TECHNICAL ASSISTANCE is available to help you take advantage of this new development. Just clip the coupon for our samples and technical bulletin on Sulfamic Acid.

DU PONT
REG. U. S. PAT. OFF.

SULFAMIC ACID

**The basic material in making Amine Sulfamates*

BETTER THINGS FOR BETTER LIVING. . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Room 4069 B
Du Pont Bldg., Wilmington 98, Delaware

Please send me Technical Bulletin on Sulfamic Acid.

Name_____ Title_____

Company_____

Address_____

City_____ State_____

TRAFFIC

(Continued from page 36)

tion their business is hauled by another method" can't be used as a warning. Such evidence may have only a small influence or place a tiny dent in the entire picture. Witnesses, year after year, cite "facts" and the picture is like a pendulum; the traffic "swings back and forth" according to the "figures."

The sum of the whole business is that both systems, rail and motor, haul more today than previously. What then is the justice for an increase to 400 percent?

* * *

New Straight B/L

The new straight bill-of-lading form that will be permissible for the shipper to use either with a rail or motor shipment has been included in the classifications of both carriers, effective June 10.

The term "short form" may be a misnomer. The rail sizes of the present form are 6x9½, 8x9½ and 8½x11 inches; the motor carriers used various sizes although the standard form is 8x9¼. The classifications do not specify one size and it will no doubt be permissible to continue the use of various sizes as the present practice. If desired the shipper can now have his own bills-of-lading printed. The form is similar to the one now in use. Those who have their own printed should instruct the printer that the form is to be on white paper. The form requires the shipper to certify that he is familiar with "all terms and conditions" that were previously printed on the back; they are the same as in the Classification Tariff governing the transportation of the shipment. Important as those terms are, very few can read the fine print as generally seen on the forms issued by the carriers.

SPR R95-30 Skid Platforms

A revision of Simplified Practice Recommendation R95-30, Skid Platforms, approved by the Standing Committee of the Industry, has been submitted to producers, distributors, users and others interested for acceptance or comment, according to an announcement by the Commodity Standards Division, of the National Bureau of Standards.

The revision covers the addition of four skids, with minimum dimensions, as recommended by the Standing Committee.

The initial recommendation was developed in 1928; revised by the Standing Committee and promulgated by the Department of Commerce, through the National Bureau of Standards in 1930.

Mimeographed copies of the proposed revision may be obtained from the Commodity Standards Division, National Bureau of Standards, Washington 25, D. C.

SUPPLIERS

"The Tale of the Powdered Pig", a new sound and color film, has just been released by the Reynolds Metals Co., Louisville, Ky. Produced by Reynolds own motion picture department in Louisville, the film describes the uses to which alumnium powders and pastes are put. The process of converting bauxite into aluminum is described briefly and scenes in Reynolds research laboratories show how new uses for the powder are being discovered. Effectiveness of the new Reynoldized aluminum paint for the prevention of mold and rot, and the recently developed aluminum putty, are also illustrated. About two-thirds of the scenes were filmed in Louisville at Reynolds Plant 3, where the powders and pastes are manufactured. Other scenes were made at Reynolds bauxite mines and alumina plants at Hurricane Creek and Jones Mills, Ark. Requests for bookings should be directed to Reynolds Metals Co., Motion Picture Department, 821 South 12th street, Louisville 1, Ky.

John W. Belanger, manager of the General Electric Co. turbine divisions at Schenectady, N. Y., and Nicholas M. DuChemin, manager of the company's meter and instrument divisions at Lynn, Mass., have been appointed assistant general managers of the G-E apparatus department. Mr. Belanger and Mr. DuChemin will assist in directing operations of the department's product divisions, works service divisions and various works. Marketing activities of the Apparatus Department will continue to function under the direction of Chester H. Lang, G-E vice-president in charge of apparatus department sales.

Timken Roller Bearing Co., Canton, Ohio, will hold open house June 20-24 in observance of its Fiftieth Anniversary. This is the first time Timken has opened its doors to the entire public in the communities and surrounding areas where it operates plants. The open house will also be held simultaneously in the firm's other plants in Columbus, Zanesville, and Wooster, Ohio; in Colorado Springs, Colo., and St. Thomas, Ont.

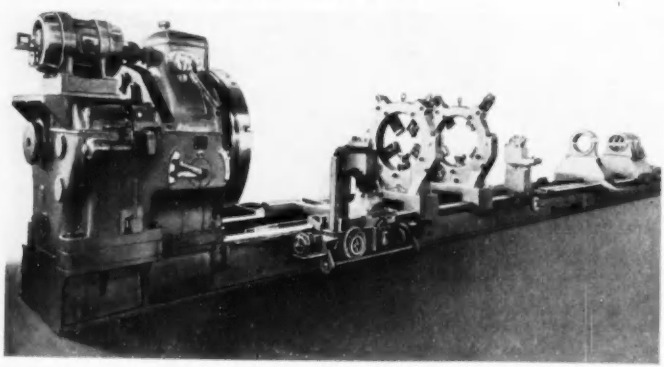
Lindsay Wire Weaving Co. employes, 14001-14299 Aspinwall Avenue, Cleveland, Ohio, and their families, about 750 in number, were present on "family day," May 15. "We are convinced," reports A. Fred Crossman, president of the Cleveland firm, "that a get-together of this kind does much to promote the understanding between management and men which means so much to the future of American industry."

Wheelco Instruments Co., Chicago, has opened a district office for Kentucky, Southwestern Ohio and Northeastern Indiana at 307 East Fourth street, Cincinnati. E. C. McFaul is manager of the new office. North Carolina has been assigned to J. L. Highsmith & Co., 111 Corcoran street, Durham, N. C.

Pusey & Jones Corp., Wilmington, Del., has been awarded the contract for a 226-inch Fourdrinier Machine for the first newsprint mill in India. The machine will be installed in a newsprint plant now under construction for National Newsprint & Paper Mills, Ltd. (Nepamills), Chandni, Central Provinces. It will be the first newsprint mill in the world to be based on a mixture of bamboo pulp and pulp from a deciduous tree called *salai*, both available in

(Continued on page 40)

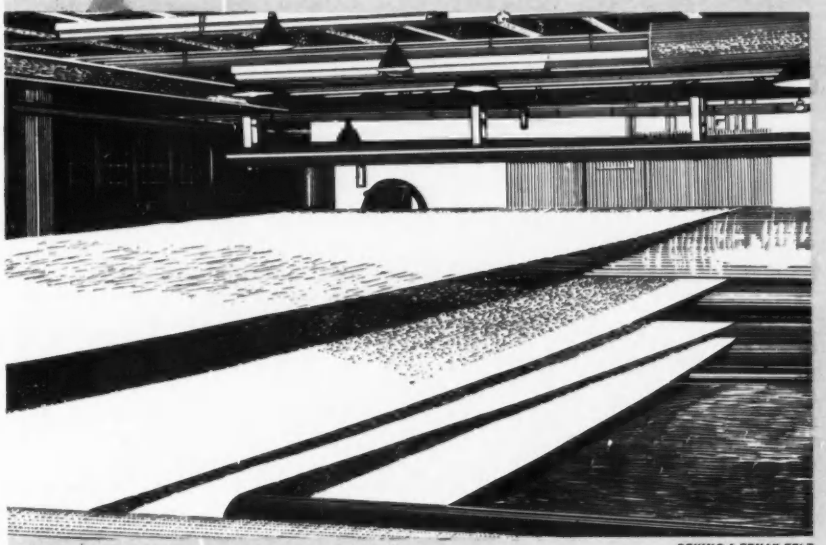
THE SAME LATHE, ONLY DIFFERENT



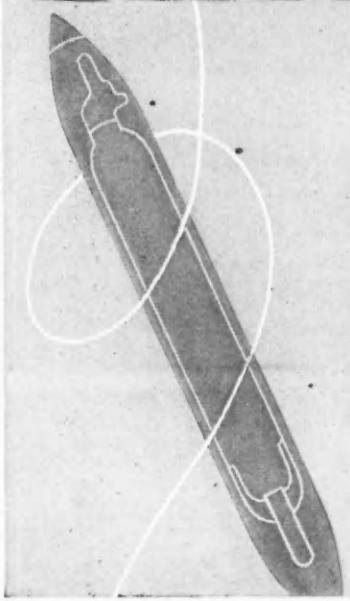
This Niles Boring Lathe has just undergone a transformation at the hands of the Simmons Machine Tool Corp., Albany, N. Y., rebuilders. Originally built to swing 72" and equipped with a 12" boring bar, it now swings 84" and has a 30" diameter boring bar. Here's how Simmons did it: Six-inch raising blocks were inserted under the headstock and each of the steady rests. Then new boring rests were added to take the 30" diameter boring bar. In addition, an entirely new turning carriage was engineered with self-contained traverse and feed mechanism. The lathe is used by a paper mill machinery manufacturer to turn out hollow rolls up to 60" in diameter and 30' in length.

TENAX FELTS

—lower your operating costs
—by increasing the efficiency of your paper-making machines



DRYING A TENAX FELT



Experts, with many years experience, carefully supervise each phase of production in the Lockport Mill. All their efforts serve to give you felts most suited to your paper-making needs.

The Lockport representative in your territory is fully qualified to advise on all technical questions relating to felts. He is at your service as is our plant and all its people. We invite your inquiries.

LOCKPORT FELT COMPANY · NEWFANE, NEW YORK

SUPPLIERS . . . . .

(Continued from page 38)

large quantities in the Central Provinces. Initial capacity will be 100 tons a day. The engineering and purchasing are being handled by Ebasco Services, Inc., New York. Complete plant equipment is being purchased in this country. The Puseyjones Fourdrinier is a three-roll machine. Production will begin early in 1950.

American Cyanamid Co.'s New Product Department is now in pilot plant production of cyanuric chloride. A recently issued 33-page technical bulletin is available and covers details of physical and chemical characteristics, and uses of this product. The bulletin will be sent to interested parties upon written request to the New Product Department, American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.

Samuel Wit, who has been a sales engineer with Lukenweld, machinery-making division of Lukens Steel Co., Coatesville, Pa., assisting in the New York, Boston and Syracuse offices, has been named district manager of sales of the Lukens office in Chicago. J. H. Faunce, Jr., who has been manager there will assume other duties with Lukens about July 1, when Mr. Wit will take over his work in Chicago.

Gould Storage Battery Corp., Trenton, N. J., is marketing the Televel, a new translucent plastic vent plug which shows at a glance whether the battery needs water. Maintenance men determine electrolyte levels without unscrewing the Televel. The translucent plug has a cylindrical element which projects down into the electrolyte. The portion of the element which extends into the electrolyte is cone-shaped. When the electrolyte is at the correct level, the cone is completely covered. Light waves traveling down the element are absorbed into the electrolyte and not reflected. The top of the plug shows a black circle, indicating that no water is required. When the electrolyte is low, the cone is not covered by the electroylte and light waves are reflected back up the element from the electrolyte surface. A white circle appears, indicating that water is required.

Mixing Equipment Co., Inc., Rochester, N. Y., has named Johnson Roney II of Clearwater, Fla., and the Industrial Sales & Engineering Co., Buffalo, N. Y., as field sales representatives.

ASS'T TO GEN'L MGR.

E. E. Esgate has been named assistant to General Manager A. W. Smythe of the Thew Shovel Co., Lorain, Ohio. . . Previously he was a member of E. E. Esgate Associates, consultants, New York City.

TO DOWNINGTOWN

R. W. Polleys has joined the sales staff of the Downingtown Mfg., Co., Downingtown, Pa. For the past three years he has been in Cleveland as a consulting engineer to the paper industry.

MERCHANTS . . . . .

Temple Honors Dr. Thomas

PHILADELPHIA — Dr. Morgan H. Thomas, president of the Garrett-Buchanan Co., on May 12 was presented with the Russell H. Conwell Award by the General Alumni Ass'n. of Temple University at his farm in Bethayres. The presentation was to have been made at the Founders Day dinner of the alumni association in February, but was postponed by Dr. Thomas' illness.

Dr. Thomas is not a Temple alumnus, but was nevertheless thus signally honored for his substantial aid to that institution. He is president of the board of trustees of Beaver College, a director of the Sabbath School Ass'n. of Pennsylvania, treasurer of the Salvation Army, a director of Whosoever Mission, and an officer of Tioga Presbyterian Church. Thomas Theological Hall at Temple University is a memorial to Dr. Thomas' parents.

McIntosh's 10th Anniversary

CHICAGO—The McIntosh Paper Co., paper merchant firm, is currently observing its tenth anniversary. The firm is a partnership which was founded in 1939 by W. M. McIntosh, R. A. Freeman, J. J. Barrett, J. E. Blomquist, R. W. Keyt and S. W. Richards.

Scott Retail Sales D.M.'s

CHESTER, Pa.—The Scott Paper Co. has named the following managers of retail sales districts: Chicago, Joseph A. Keller, Jr.; Washington, D.C., J. Budd Breidenstein; Springfield, Mass., Edward A. McLaughlin.

Amarillo Firm Incorporated

AMARILLO, Texas — Texas Paper & Rag Co. has been incorporated by R. E. Rogers, E. W. Rogers and Hoyt Smith, with authorized capital stock of $20,000.

Newhouse in New Quarters

MINNEAPOLIS—The Newhouse Paper Co. on May 27 removed to its new offices at 1312 South Fifth street.

AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1949		Corresponding Weeks—1948	
April 16	88.3	April 17	100.4
April 23	83.3	April 24	102.5
April 30	83.5	May 1	103.5
May 7	84.6	May 8	102.4
May 14 (Revised)	82.4	May 15	100.4
May 21	*79.5	May 22	*100.3

* Capacity in Tons—180,016. * Capacity in Tons—178,791.

COMPARATIVE MONTHLY SUMMARIES

	1948			1949			1949		
Jan.	100.1	May	100.5	Oct.	99.1				
Feb.	99.8	June	95.7	Nov.	97.1	Jan.	98.6		
Mar.	100.8	July	85.3	Dec.	87.1	Feb.	92.8		
Apr.	100.8	Aug.	96.8			Mar.	‡89.3		
		Sept.	91.8	Year Avg.	96.2	Apr.	‡85.7		

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1942	1943	1944	1945	1946	1947	1948	1949
Year to Date	101.3	89.2	88.4	88.7	100.0	105.3	100.9	89.4
Year Average	90.4	87.8	88.1	89.4	101.1	104.3	96.2	

PAPERBOARD OPERATING RATIOS†

Current Weeks—1949		Corresponding Weeks—1948	
April 16	80	April 17	100
April 23	77	April 24	102
April 30	80	*May 1	102
May 7	78	May 8	101
May 14	79	May 15	100
May 21	77	May 22	100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1948	99	100	102	102	100	94	81	92	91	96	94	84	95
1949	88	85	79	79									

* All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

every handling job is easier with TOWMOTOR MH!

FINGER-TIP HYDRAULIC CONTROL
another Towmotor efficiency feature!

Hydraulic lifting and tilting controls, plus steering column gear shift . . . all in easy reach for precision placement of heaviest loads!

TOWMOTOR precision controls enable one man to handle and place all loads swiftly and accurately. In loading, unloading or stacking right up to the ceiling, TOWMOTOR **M**ass **H**andling simplifies difficult handling jobs, with all controls engineered for the operator's convenience. Compare the Efficiency Features of TOWMOTOR with any other lift truck. You'll see why TOWMOTOR makes every handling job easier, faster, safer. Write for current issue of Handling Materials Illustrated. TOWMOTOR CORPORATION, Division 17, 1226 East 152nd Street, Cleveland 10, Ohio. Representatives in all Principal Cities in U. S. and Canada.

TOWMOTOR
THE ONE-MAN-GANG

FORK LIFT TRUCKS and TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

PRICES

The prices below reflect general market quotations applying to those standard grades in which the heavy volume of business is being done.

NEW YORK

Delivered New York

Standard News, per ton—

Rolls, contract	$100.00/	—
Sheets	115.00/	—

F.o.b. Mill, Varying Freight Allowances

Kraft—per cwt., 40# base wgt.

Standard Wrapping Rolls	$6.75/	$7.00
No. 1 Wrapping Rolls	7.00/	7.50
Standard Bag	6.00/	—

Tissues—per ream 24x36 (480) 10/11 lbs.
2500 lbs. or more

Wh. No. 1 Frd.	$1.60/	$1.70
Wh. No. 1 M. G.	1.60/	1.80
Wh. No. 1½	1.55/	—
Wh. No. 2	1.20/	1.25
Kraft Anti-Tar	1.45/	1.62
Kraft Unbl.	1.75/	—
Shrd. Wh. No. 1 per lb.	.11½/	—

Toilet—per case of 100 rolls—1 M sheets.

Unbleached 4½x4½	$6.80/	—
Unbleached 4½x5	5.85/	—
Bleached 4½x4½	7.70/	—
Bleached 4½x5	8.00/	8.80
Per Case of 50 rolls—1500 sheets		
Unbleached 4½x4½	$5.50/	—
Per Case of 50 rolls—2000 sheets		
Unbleached 4½x4½	6.70/	—
Bleached 4½x4½	7.40/	—

Paper Towels—per case of 3750—Zone 1.

Wh. Jr. M'tif'd 9¼x9½	$5.45	
Br. Sr. M'tif'd 10x12	3.80	
Br. Jr. M'tif'd 9½x9¾	3.30	
Br. Jr. Sgl. fold 10x10¾	3.35	

Manila, per cwt.

No. 1 Jute Tag, sheets*	$15.05/	—
Reg. Jute M.F. Manila, sheets*	13.50/	15.50
No. 1 Manila Wrapping	8.75/	10.50
Printing Manila	10.00/	11.00

* Less usual allowance for rolls.

Boards, per ton—

Filled News	$70.00/	$72.50
Plain Chip	70.00/	—
Blchd. Mla. L-d. Chip*	97.50/	—
White Pat. coated*	115.00/	
Kraft Liners 42 lb.	100.00/	
Kraft Corr. .009	105.00/	
Binders Boards	110.00/	116.00

* Base Prices per 10 tons. Less than 10 ton but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

World Wood Pulp Markets

Second Quarter Contract Prices, Per Short Air-Dry Ton

	Delivered, with varying freight allowances		On dock Atlantic Ports Varying freight allowances		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$75.00/ —	$75.00/ —			
Sideruns Pulping News		80.00/ 90.00			
Soda, Bleached	120.00/ —	120.00/ —		Competitive	
Sulphate, Bleached	‡132.50/136.50	130.00/136.00	130.00/140.00		
Sulphate, Unbl'd North'n	105.00/ —	94.00/ 95.00	105.00/112.50	with	
Sulphate, Unbl'd South'n	77.50/ 85.00				
Sulphite Blchd. (S'ftw'd)	126.00/ —	130.00/135.00	130.00/132.50	Canadian	125.00/ —
Sulphite, Blchd. (H'dw'd)	125.00/ —				
Sulphite, Unbleached	115.00/ —	118.00/ —	†110.00/118.00	Grades	
Sulphite, Unbl'd (Glassine)	121.50/ —	122.00/ —	122.00/127.50		

‡ Southern. † Spot offerings: $100.00/105.00 deld.

Waste Paper Market

Prices to Mills. Quotations Nominal

F.O.B. Shipping Point (Per Ton)

	New York May 27	Philadelphia May 10	Boston May 28	Chicago May 2
No. 1 Mixed Paper	$4.00/ $5.00	$2.00/ $3.00	$4.00/ $6.00	$5.00/ —
Boxboard Cuts	6.00/ 7.00	3.00/ 4.00	— / 5.00	7.00/ —
Mill Wrappers	12.00/ 14.00	8.00/ 10.00	— / 9.00	7.00/ —
No. 1 News	7.00/ 8.00	5.00/ 7.00	— / 9.00	11.00/ —
Over-issue News	15.00/ 16.00	10.00/ 12.00	10.00/ 11.00	14.00/ —
Corrugated Containers	7.00/ 9.00	7.00/ 8.00	8.00/ 10.50	12.00/ —
New Corrugated Cuts	15.00/ 16.00	18.00/ 20.00	16.00/ —	15.00/ —
Double Kraft Ld. Corr. Cuts	25.00/ —	25.00/ 30.00	25.00/ —	30.00/ —
Used Kraft Bags	25.00/ —	15.00/ 17.00	14.00/ 18.00	15.00/ —
No. 1 Brown Kraft Paper	nominal	20.00/ —	25.00/ —	15.00/ —
Super Resorted Br. Kraft	30.00/ 35.00	30.00/ —	40.00/ —	30.00/ —
New Br. Kraft Env. Cuts	65.00/ 70.00	60.00/ 65.00	60.00/ 65.00	50.00/ —
New Br. Kraft Cuts	45.00/ 50.00	55.00/ —	45.00/ —	45.00/ —
No. 1 Gdwd. Shvs.	20.00/ 25.00	12.00/ 15.00	25.00/ —	21.00/ —
White Newsblanks	55.00/ 60.00	60.00/ 65.00	/ 50.00	35.00/ —
No. 1 Flyleaf Shvs.	30.00/ 35.00	15.00/ 20.00	35.00/ 40.00	30.00/ —
No. 1 Soft Wht. Shvs.	65.00/ 70.00	60.00/ 65.00	70.00/ 80.00	55.00/ —
Super Soft Wht. Shvs.	85.00/ 90.00	65.00/ 70.00	80.00/100.00	65.00/ —
Hd. Wht. Shvs.	80.00/ 85.00	70.00/ 75.00	80.00/ —	80.00/ —
Hd. Wht. Env. Cuts.	95.00/100.00	90.00/ 95.00	90.00/105.00	90.00/ —
New Manila Env. Cuts.	60.00/ 70.00	60.00/ 65.00	60.00/ 70.00	55.00/ —
Col. Tab Cards	25.00/ 30.00	25.00/ 30.00	— / —	20.00/ —
Manila Tab Cards	60.00/ 65.00	55.00/ 60.00	65.00/ 75.00	50.00/ —
No. 1 Mixed Ledger	30.00/ 32.50	20.00/ 25.00	37.50/ —	30.00/ —
White Ledger	35.00/ 40.00	35.00/ —	45.00/ 50.00	35.00/ —
Mixed Books & Mags.	7.00/ 8.00	4.00/ 5.00	12.00/ —	5.00/ —
No. 1 Rep'd Hvy. Books & Mags.	15.00/ 17.00	8.00/ 10.00	22.00/ 23.00	20.00/ —

The following prices are representative of distributors' resale prices, all deliveries in Zone 1.

Rag Content Bonds and Ledgers—

White, 20 lb.

Bonds,

	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$51.40/$53.90
100% Rag	44.55/ 46.15
75% Rag	33.90/ 35.40
50% Rag	28.10/ 29.55
25% Rag	24.85/ 26.80

Ledgers,

	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$52.65/$54.55
100% Rag	45.65/ 46.40
75% Rag	35.15/ 36.10
50% Rag	29.40/ 30.05
25% Rag	26.15/ 26.80

Sulphite Bonds and Ledgers

White, 20 lb.

Bonds,

	4 Ctns.
	per cwt.
No. 1	$17.50/ —
No. 2	16.75/ —
No. 4	15.80/ 15.95

Ledgers,

	4 Ctns.
	per cwt.
No. 1	$18.80/ —
No. 2	18.25/ —

White Book,

	Conversion Coated	Case
		per cwt.
No. 1		$20.75/$20.90
No. 2		19.50/ 19.65
No. 3		18.15/ 18.90
	Machine Coated	
No. 1		16.40/ 16.65
No. 2		14.90/ 15.15
	Uncoated	
No. 1 Antique (Watermarked)		16.40/ 17.90
Offset		15.15/ 16.65
A Grade E. F.		15.40/ —
A Grade S. C.		15.90/ 16.15
B Grade E. F.		14.90/ 15.15
B Grade S. C.		15.40/ 15.65

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)		
Coarse Polished—India	.35½/	.36½
Fine Polished India	.41½/	.45
Unpolished—Paper Makers	.32½/	.34½
Tube Rope	.33¼/	.35½
Wrapping	.36 /	.38¾
Cotton	.58 /	.60
Polished Cotton	.55 /	—
(Hard Fiber)		
Mex. Sisal	.21 /	.27
(American Hemp)		
Polished Hemp	.46½/	.48
Unpolished	.35 /	.37¼

Rag Market

New Domestic Cotton Cuttings

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
White Shirt	$10.00/	$10.50
Unbleached Muslin	10.00/	10.50
Light Silesias	7.00/	7.50
White Back Blue Overalls	6.25/	6.50
Blue Overalls	6.00/	6.25
Fancy Shirt	4.50/	5.00
Percales	5.50/	6.00
Light Prints	5.50/	6.00
No. 1 Washables	**3.00/**	**3.25**
Bleachable Khaki	5.00/	5.50
Unbleachable Khaki	4.50/	5.00
Cottonades	4.25/	4.75
Lt. Flannelettes	7.00/	7.50
Men's Corduroy	3.50/	4.00
Women's Corduroy	3.00/	3.50

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
No. 1 Whites, Repacked	**$4.25/**	**$4.75**
No. 1 Whites, Miscellaneous	3.50/	4.00
No. 2 Whites, Repacked	2.75/	3.00

(Continued on page 44)

FOR LEAKPROOF, TROUBLE-FREE PIPE RUNS

Cut-a-way view of a Walseal Tee showing ring of silver brazed alloy, and completed Silbraz joint.

Specify Walseal* Products

On all types of piping jobs where Type "B" copper or red brass pipe is used, trouble can be avoided by installing Silbraz* joints — made with Walseal valves, fittings and flanges.

Threadless, patented Silbraz joints are silver brazed (not soft soldered) pipe joints that are leakproof, trouble-free — permanent . . . connections that will not creep or pull apart; that literally join with the piping system to form a "one-piece pipe line". Thus, these modern joints eliminate the need for maintenance and costly repairs — especially important where lowered operating costs are imperative.

For complete details on the modern Silbraz joint, made with Walseal products, write for a copy of Walworth Circular 84.

**Patented — Reg. U. S. Patent Office.*

Recommended for

- **Hot and Cold Water Circulating Systems**
- **Boiler Feed Lines**
- **Steam Return Lines**
- **Condensate Lines**
- **Low and High Pressure Air Systems**
- **Lubricating Oil Circulating Systems**
- **Industrial Gas Piping**
- **Solvent and Vacuum Piping Systems**

Make it a "one-piece pipe line" with WALSEAL

WALWORTH

valves and fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.

PRICES

(Continued from page 42)

No. 2 Whites, Miscellaneous	2.00/	2.25
Cotton Pants & Overalls	2.75/	3.00
Thirds and Blues, Repacked	2.25/	2.50
No. 1 Roofing Rags	1.40/	1.50
No. 2 Roofing Rags	1.25/	1.35
No. 3 Jute Bagging	.95/	1.05
No. 4 Brussels & brd. Bck'd crpts.	.90/	1.00
Roofing Bagging	.80/	.95

New Foreign Cotton Cuttings

(Prices to Dealer, F.o.b. Dock, N. Y.)

	Per 100 lbs.
New Dark Cuttings	
New Mixed Cuttings	
Light Silesias	prices
Light Flannelettes	
New White Cuttings	are
New Unbleached Cuttings	
Fancy Shirt Cuttings	nominal
Light Prints	
Bleachable Khaki, No. 1	
Unbl. Khaki, No. 1	

Old Foreign Rags

(Prices to Dealer, F.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	
No. 2 White Cottons	
No. 3 White Cottons	
No. 4 White Cottons	prices
Extra Light Prints	
Old Light Prints	
Med. Light Prints	are
Dutch Blue Cottons	
Checks and Blues	
Linsey Garments	nominal
Dark Cottons, European	
Dark Cottons, Egyptian	
Old Shopperies	
New Shopperies	

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.	
Foreign Gunny, No. 1	**$7.50/**	**$8.00**
Domestic Gunny, No. 1	7.50/	8.00
Heavy Wool Tares	6.50/	7.00
No. 1 Scrap Bagging	4.75/	5.00
Foreign Manila Rope	5.50/	5.75
Domestic Manila Rope	5.50/	5.75
Jute Strings	6.25/	6.50
No. 1 Sisal Strings	5.00/	5.25
Mixed Strings	1.15/	1.30

PHILADELPHIA

Domestic Rags (new)

(F.o.b. Eastern Shipping Point)

	Per 100 lbs.
White Shirt	$10.25/$10.50
Light Silesias	6.75/ 7.00
Unbleached Muslin	10.00/ 10.25
Light Prints	5.25/ 5.50
Washable No. 1	3.00/ 3.50
Blue Overall	6.00/ 6.25
Percales	5.50/ 5.75
Unbleachable Khaki	4.00/ 4.25
Bleachable Khaki	5.25/ 5.50
Men's Corduroy	4.25/ 4.50
Ladies' Corduroy	4.00/ 4.25
Cottonades	4.25/ 4.50
Fancy Shirts	5.25/ 5.50

Domestic Rags (old)

(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
Mixed White	$3.50/	$3.75
Thirds and Blues Repacked	2.50/	2.65
Cotton Pants & Overalls	3.00/	3.25
No. 1 Roofing Stock	1.05/	1.15
No. 2 Roofing Stock	1.00/	1.05
Roofing Bagging	.75/	.90

Bagging

(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
Old Manila Rope	$5.50/	—
Foreign Gunny No. 1	8.00/	—
Domestic Gunny No. 1	8.00/	—
Sisal Strings No. 1	3.75/	—
No. 1 Scrap	5.50/	—
No. 1 Jute Rope	6.00/	6.50

BOSTON

Bagging

(F.o.b. Boston)

	Per 100 lbs.	
Foreign Gunny	7.50 /	8.00
Domestic Gunny	8.25 /	8.50
Domestic No. 1 Old Rope	6.00 /	6.25
Foreign No. 1 Old Rope	**6.50 /**	**—**
Mixed Strings	1.35 /	—
Transmission Rope—Domestic	3.00 /	3.50
Jute Carpet Threads	— /	4.00
Bleachery Burlap	— /	9.00
Scrap Burlap—		
Foreign	6.50 /	7.00
Domestic	6.00 /	6.50
South America	6.50 /	7.00
Austr. Wool Pouches	8.75 /	—
New Zealand Wool Pouches	— /	6.00
New Burlap Cuttings	8.50 /	—
Heavy Baling Bagging	— /	**7.50**
Paper Mill Bagging	— /	**6.75**

Domestic Rags (New)

(F.o.b. Boston)

	Per 100 lbs.	
New Light Prints	5.75 /	6.00
Fancy Percales	6.00 /	6.25
White No. 1 Shirt	10.00 /	10.75
Light Flannelettes	— /	**7.00**
Canton Flannels, Bleached	— /	**9.00**
Underwear Cutters, Bleached	10.75 /	11.00
Underwear Cutters, Unbleached	10.00 /	10.25
Blue Overalls	6.25 /	6.75
Soft Unbleached	10.00 /	10.75
Blue Cheviots	6.00 /	6.75
Fancy Shirt	4.00 /	4.50
Washable	3.25 /	3.50
Khaki Cuttings	5.00 /	5.25
Men's Corduroy	4.50 /	—
Khaki Canvas	— /	5.50
B. V. D. Cuttings	10.00 /	10.25

Domestic Rags (Old)

(F.o.b. Boston)

	Per 100 lbs.	
No. 1 Whites, Repacked	$3.50 /	$4.00
No. 1 Whites, Miscellaneous	3.00 /	3.50
Twos and Blues, Repacked	— /	2.00
Cotton Pants & Overalls	2.50 /	2.75
No. 1 Roofing Stock	— /	1.20
No. 2 Roofing Stock	— /	1.10
Roofing Bagging	— /	.90

NAT. STARCH UPS TWO

S. F. "Woody" Thune left, is now sales manager of the mid-western division of National Starch Products, Inc., with headquarters at Chicago, and Francis R. "Fran" Loetterle (right) will go to San Francisco as sales manager of the Pacific Coast Division.

MARKETS

Blanc Fixe

Prices firm. Supply ample. Currently quoted at $85.00 in bags, car lots, at works, 6 cents per pound, l.c.l., deld. By-product supply somewhat restricted. Quoted at $77.50 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder

Demand and prices steady. Steady improvement in supply. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l., works.

Casein

Prices nominal. Buying dull. Current prices on processed acid precipitated casein at 19 to 21 cents per pound for domestic grades and 18½ to 19 cents for imported grades, f.o.b. shipping point, car lots.

Caustic Soda

Carload prices firm. Supplies available for prompt shipment. L.c.l. sales reported at competitive levels. Solid caustic is reported at $3.05 per cwt. flaked and ground is quoted at $3.45 per cwt., in 400 pound drums, $3.95 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.40 per cwt.; liquid 73 per cent in tank cars at $2.50 per cwt., at works.

China Clay

Prices firm. Demand easier, supply of domestic and imported ample. Domestic filler quoted at $10 to $12.50 per ton, car lots, f.o.b. mines. Coating clay is $15 to $25. Imported clay quotation, short tons, $16 to $35, export warehouse.

Chlorine

Prices firm. Supply condition favorable. Demand moderately strong. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt. in multi-tank cars, f.o.b., works.

Rosin

Demand drops off. Prices reduced. Some foreign inquiry; but no real pickup expected till consumer inventories are leveled. Gum rosin in drums per 100 pounds net in car lots, f.o.b. Savannah. B, $5.75; G, H, I, K, $6.33, Savannah; B, $4.25; FF $5.50.

Rosin Size

Supply good. Demand steady. Seventy percent gum and pale wood grades, tank cars, $5.45 to $5.55 f.o.b. southern shipping point.

Salt Cake

Price eases $2.00 to $3.00 a ton. Pickup in demand noted at moderate level. Domestic quoted at $25.75, f.o.b. shipping point, freight allowed to destination.

Soda Ash

In free supply. Demand easier. Carload prices firm. Some competitive cutting noted in l.c.l. lots. Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

Starch, Corn

Demand fair. Supply ample. Pearl grade currently quoted at $4.82 per 100 pounds; powdered starch at $4.93 per 100 pounds; car lots, f.o.b. Chicago.

Starch, Potato

Steady paper mill demand. Idaho quantities limited to warehouse. Supply in Maine ample. High grade quoted at $7.00 cwt., l.c.l., ex. N. Y. whse.; $4.75 f.o.b. Maine; Pearl grade, $4.60 cwt. f.o.b. Maine.

Sulphate of Alumina

Prices firm Supply good. Demand steady. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

Sulphur

Prices firm. Demand sustained at good level. Supply good. Annual contracts are quoted at $18 per long ton, f.o.b. mines; $19.50, f.o.b. vessels, Gulf ports. Export price f.o.b. Gulf ports is $22.00 per long ton.

Talc

Prices steady. Demand continues ahead of supply. Domestic grades are currently quoted at $23 per ton in paper sacks, f.o.b. mills; Canadian at $35 and up per ton. All prices in car lots.

Tapioca Flour

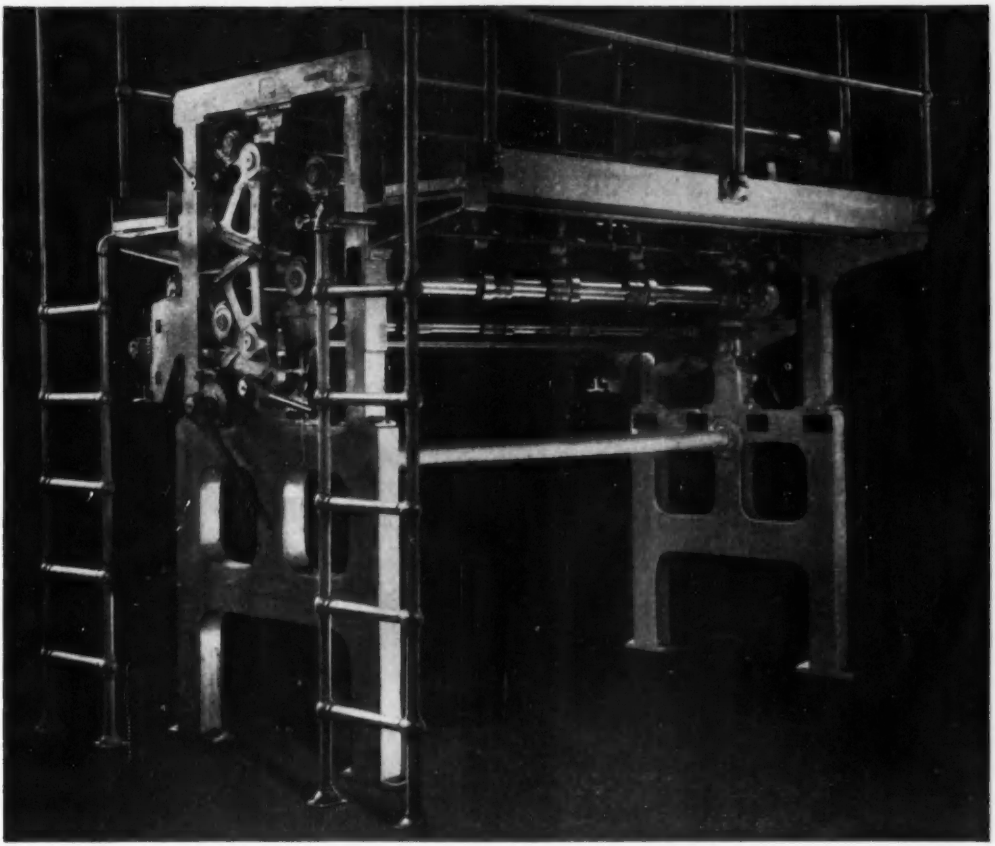
Supplies tight on all grades. First indications of Brazilian new crop coming in. Price looks slightly easier. Inquiry good. Superior high range from $10.50@$11.50 cwt.; high grades $9.50 cwt., on dock Atlantic and Gulf ports; medium grades range from $6.65/$7.50 cwt. on dock, N. Y.

Titanium Dioxide

Prices firm. Supply reported now in balance with eased demand. Anastase 19½c pound carload lots, 20c l.c.l., rutile, 21½c pound carload lots, 22½c l.c.l.; 50-pound bags, f.o.b. plant, actual freight allowed.

it's new–it's versatile–it's more efficient

Moore & White DUPLEX SLITTER



This slitter is built of box section frames, for hard continuous operation, and will efficiently handle 95 percent of the grades of paper and paperboard manufactured today. The unit can be operated with practically any type of sheeting equipment where fast change-over from one sheet-width to another is required. It eliminates shutdown time when changing sheet-width and also reduces waste due to resetting of slitters.

This unit, when combined with our new rotary sheet-cutters, permits continuous sheet operation. Changes of width and length of sizes are made without shutting down the combined units. The change-over from one slitter section to the other is fast, simple, and accurate.

Positive throwout of top slitter blades is accomplished through the use of a handle on each slitter section. One quarter-turn of the handle moves all blades in the section either in or out of normal operating position.

The slitter may be driven separately, from the sheet cutter, or direct from the paper machine line shaft. Each section is driven as a separate unit, complete with clutch to eliminate shock loads when change-over is made. All moving parts are encased in antifriction bearings.

The speed range of the new Moore & White Duplex Slitter will meet the needs of any sheeting equipment now in operation. It is built to standard widths of 50, 62, 72, 84, 110, and 124 inches. Additional widths are available in sizes to suit your requirements. Write today for complete information.

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

The MOORE & WHITE Company

15TH STREET AND LEHIGH AVENUE • PHILADELPHIA 32, PA.

UNDERWRITERS
DEALERS
BROKERS

Industrial, Utility, Railroad Bonds

Preferred and Common Stocks

•

KIDDER, PEABODY & CO.

Founded 1865

Members
New York and Boston Stock Exchanges and New York Curb Exchange

NEW YORK BOSTON
PHILADELPHIA CHICAGO

Sales and Branch Offices

Albany Newport
Altoona Providence
Baltimore Reading
Lowell Scranton
Minneapolis Springfield
New Bedford Wilkes-Barre

New York Teletype NY 1-193

FINANCIAL RECORD •

	Per Share Earnings		Indic.	May 31
	Calendar Year 1948	12 Mo. to Approx. 3/31/49	Annual Divid. Rate	Approx. Market Price
PREFERRED STOCKS				
Armstrong Cork Co. $3.75 Cum.	$46.33*	$46.33*	$3.75	95
Armstrong Cork Co. $4.00 Cum. Conv.	46.33*	46.33*	4.00	107⅝
Celotex Corp. 5% Cum.	26.42e	21.22g	1.00	17¼
Champion Paper & Fibre $4.50 Cum.	61.80j	61.80j	4.50	92¾
Container Corp. of Amer. 4% Cum.	105.41	104.24	4.00	95¾
Crown Zellerbach $4.20 Cum.	56.40f	63.54g	4.20	96⅛
Crown Zellerbach $4.00 Cum. Conv. 2nd	53.96f*	60.21g*	4.00	91
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.10	11.71	2.50	48¼
Flintkote Co. $4 Cum.	83.25	74.66	4.00	101
Robert Gair Co., Inc. 6% Cum.	17.08	15.96	1.20	15⅜
International Paper Co. $4 Cum.	263.00	265.18	4.00	95⅝
Johns-Manville $3.50 Cum.	209.89	217.72	3.50	104
Kimberly Clark Corp. 4½% Cum.	80.74	77.94	4.50	103¼
Kimberly Clark Corp. 4% Cum. Conv. 2nd	41.59*	46.40	4.00	97¼
MacAndrews & Forbes 6% Cum.	62.23	62.60	6.00	134
Mead Corp. 4¼% Cum.	73.46	71.12	4.25	70¾
Mead Corp. 4% Cum. Conv. 2nd	29.91*	28.84*	2.00	30½
Paraffine Cos. Inc. 4% Cum. Conv.	156.11	158.51	4.00	103⅝
Rayonier Inc. $2 Cum.	16.43	15.72	2.00	29¾
St. Regis Paper Co. 4.40% 1st A	79.90	68.10	4.40	83
Scott Paper Co. $3.40 Cum.	59.06	66.09	3.40	95
U. S. Gypsum Co. 7% Cum.	314.45	314.18	7.00	182½
United Wallpaper Inc. 4% Cum. Conv.	(d)0.79	15.44	2.00	23½
West Virginia Pulp & Paper 4½% Cum.	79.45c	77.54d	4.50	105¾
COMMON STOCKS				
APW Products Co.	$0.73	$0.22	$0.25	2¼
American Writing Paper Corp.	(d)0.15	(d)0.15	0.25	5½
Armstrong Cork Co.	7.54	n.a.	3.00	40⅝
Celotex Corp.	7.21e	5.73g	2.00	17⅞
Certain-Teed Prods. Corp.	4.02	3.37	1.15	10
Champion Paper & Fibre	5.57f	6.09j	2.00	20⅝
Congoleum Nairn Co.	5.78	n.a.	2.25	26⅝
Container Corp. of America	10.12	9.98	4.50	29⅞
Crown Zellerbach	6.81f	7.26g	2.00	22½
Dixie Cup Co.	6.70	8.11	1.00	26
Eastern Corp.	4.76	3.10	1.00	8½
Flintkote Co.	5.86	5.13	2.50	22⅝
Robert Gair Co., Inc.	2.67	2.48	0.70	5⅛
Great Northern Paper Co.	4.63	5.12	2.80	34⅜
International Paper Co.	16.73	16.87	5.00	44⅛
Johns-Manville Corp.	5.22	5.42	2.00	33⅛
Kimberly Clark Corp.	5.02	4.83	1.65	19
MacAndrews & Forbes Co.	3.68	3.70	2.50	31⅞
Marathon Corp.	4.11c	3.76i	1.40	19⅛
Mead Corp.	6.36	6.10	2.00	14¼
National Container Corp.	2.28	1.80	0.40	5⅜
Paraffine Cos. Inc.	2.45	2.49	1.20	16⅝
Rayonier, Inc.	9.09	8.64	2.00	22⅛
Ruberoid Co.	11.80	9.87	3.25	41½
St. Regis Paper Co.	2.71	2.27	0.80	6⅝
Scott Paper Co.	4.15	4.68	2.50	51¾
Sutherland Paper Co.	6.02	5.24	2.50	33⅛
Taggart Corp.	1.08	n.a.	0.60	11⅛
Union Bag & Paper Corp.	9.17	8.21	4.00	22¾
United Board & Carton	4.95b	0.73h	(e)	47⅞
U. S. Gypsum Co.	15.04	15.03	6.00	91½
United Wallpaper	(d)0.10	0.42	(n)	3
West Virginia Pulp & Paper	11.33c	10.93i	4.00	36⅞

(a) Year ended 6/30/48
(b) Year ended 5/30/48
(c) Year ended 10/30/48
(d) Deficit
(e) Omitted dividend 2/4/49
(f) Year ended 4/30/48
(g) 12 months to approximately 1/31/49
(h) 12 months to 2/5/49
(i) 12 months to approximately 4/30/49
(j) 8 months to 12/31/48
(n) Last payment 25c, 9/16/47
n.a. Not available

(*) Earnings per combined preferred shares.

Dividends Declared

National Gypsum Co. has declared a dividend of 25 cents a common share, payable July 1 to holders of record June 16.

Hendershot Paper Products, Ltd., has declared a dividend of 25 cents per share on its common stock, payable July 2 to holders of record June 17.

Rolland Paper Co., Ltd., has declared a dividend of $1.06 per share on its 4¼ percent preferred stock, payable June 15 to holders of record June 1.

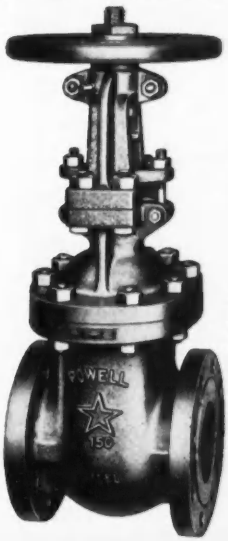
(Continued on page 48)

VALVE ACTION PERFECT!
Naturally - they're all
POWELL VALVES

Faulty valve performance can be as serious in the industrial plant as it is in the human heart.

Today, many plants throughout the United States have eliminated valve trouble by standardizing on Powell Valves. That's because, in designing *every* valve in the complete Powell Line, maximum performance at a minimum cost of maintenance has been a prime consideration. Also, because there's a Powell Valve specifically adapted to every known flow control requirement, failures due to misapplication are avoided.

So, whether you're making a new installation or need replacements, be sure to specify Powell Valves. And remember Powell Engineering Service is always at your disposal in selecting the correct valves to meet your individual requirements.



← **Fig. 1503**—Class 150-pound Cast Steel Gate Valve with flanged ends, bolted flanged yoke, outside screw rising stem, tapered solid wedge.

Fig. 1708 — 200-pound Bronze Globe Valve with renewable stainless steel seat and regrindable, renewable "Powellium" nickel-bronze disc.

Bellows Sealed "Y" Valve. Powell's Bellows Sealed Valves—Globe and "Y" patterns—are designed for high vacuum service and for installations where packing is unsatisfactory or fails frequently. The bellows is enclosed within the valve body, completely sealing the interior of the valve from the outside atmosphere. Available in 18-8S, 18-8S Mo., Monel Metal, Hastelloy, in sizes ¼" to 12", inclusive.

Fig. 1793 — Large 125-pound Iron Body Bronze Mounted Gate Valve. Made in sizes 2" to 30", incl. Has outside screw rising stem, bolted flanged yoke, tapered solid wedge.

Powell Valves are made in Bronze, Iron, Steel and a wide selection of Corrosion-Resistant metals and alloys. Valves of every type—Globe, Angle, Gate, Check, Non-return and Flush Bottom Tank Valves—are included in the Complete Powell Line.

The Wm. Powell Co., Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES

POWELL VALVES

FINANCIAL RECORD

(Continued from page 46)

International Paper Co. has declared the regular quarterly dividends of $1 a share on its cumulative $4 Preferred Stock, and $1 a share on its common stock, payable June 29, to holders of record June 6.

National Container Corp. has declared a quarterly dividend on its common stock of 10 cents per share, payable June 10, to holders of record May 20th.

Carpenter Paper Co. has declared a dividend of 50 cents per share, payable June 6 to holders of record, May 20.

MEETINGS

JUNE 8-9: General Management Conference, American Management Ass'n., New York.

JUNE 15-17: American Pulp & Paper Mill Superintendents Ass'n., Inc., 1949 Convention, Chalfonte Haddon Hall, Atlantic City, N. J. For details, write to George W. Craigie, secretary-treasurer, 220 East Forty-second Street, New York City 17.

JUNE 17-18: Paper and Twine Ass'n., French Lick Springs, Indiana. For details, write to Mr. John L. Richey, Sec.-Treas., Suite 651-653, Hotel Sinton, Cincinnati 2, Ohio.

JUNE 20-22: National Ass'n. of Purchasing Agents, 34th Annual International Convention & Inform-A-Show, Chicago, Ill.

JUNE 27-JULY 1: Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hotel, Atlantic City, N. J.

SEPTEMBER 8-10: American Pulp & Paper Mill Superintendents Ass'n., Inc., New York-Canadian Division, Champlain Hotel, Bluff Point, Plattsburgh, N. Y.

SEPTEMBER 12-15: West Coast TAPPI Meeting, Multnomah Hotel, Portland, Oregon. For further details, write to V. A. Wise, Griffith Rubber Mills, 2439 N.W., 22nd Ave., Portland, Ore.

SEPTEMBER 21-23: Direct Mail Advertising Association, Inc., Annual Conference, Congress Hotel, Chicago. For details, write to Frank Frazier, Direct Mail Advertising Ass'n., Inc., 17 East 42nd Street, New York 17.

SEPTEMBER 26-29: National Paper Trade Ass'n., Fall Meeting, Stevens Hotel, Chicago, Ill. For further details, write to A. W. Chamberlain, Exec-Secy., National Paper Trade Ass'n., 220 East 42nd St., New York, N. Y.

OCTOBER 4-7: Fourth Annual Industrial Packaging & Materials Handling Exposition, Convention Hall, Detroit, Michigan. For further details, write to C. J. Carney, Jr., Managing Director, Soc. of Industrial Packaging & Materials Handling Engrs., 20 W. Jackson Blvd., Chicago 4, Ill.

OCTOBER 10-14: West Coast Meeting, American Society for Testing Materials. (First national meeting of ASTM on West Coast.) Fairmont Hotel, San Francisco, California.

OCTOBER 24-28: National Safety Council, 1949 National Safety Congress, Chicago. For details, write to Harley B. Goodrich, National Safety Council, 20 North Wacker Drive, Chicago 6, Ill.

NOVEMBER 1-5: Pacific Chemical Exposition, California Section, American Chemical Society, San Francisco Civic Audtiorium, San Francisco, Calif. For details, write to Marcus W. Hinson, exposition manager.

IMPORTS

Week ending May 28

NEW YORK

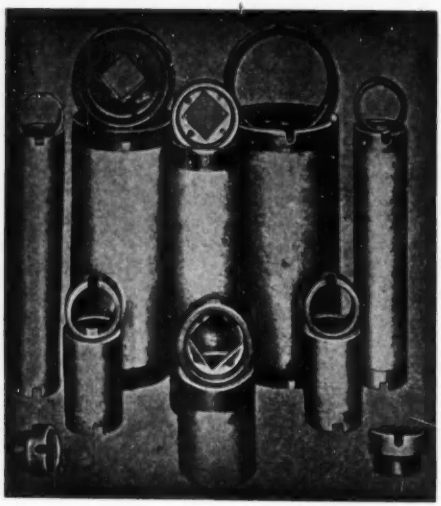
Newsprint

N. Y. Journal American, Markland, Liverpool, N.S., 254 rolls.
N. Y. Herald Tribune, Markland, Liverpool, N.S., 1692 rolls.
N. Y. World Telegram, Markland, Liverpool, N.S., 541 rolls.
Brooklyn Eagle, Markland, Liverpool, N.S., 808 rolls.
Brooklyn Eagle Press, Inc., Markland, Liverpool, N.S., 61 rolls.
Herald Statesman Inc., Markland, Liverpool, N.S., 42 rolls.
Washington Post, (Alexandria, Va.), Markland, Liverpool, N.S., 2744 rolls.
Alexandria Gazette, (Alexandria, Va.), Markland, Liverpool, N.S., 33 rolls.
Sun, Arlington, (Alexandria, Va.), Markland, Liverpool, N.S., 20 rolls.
Washington Daily News, (Alexandria, Va.), Markland, Liverpool, N.S., 168 rolls.
R. A. Olsen, Kermic, Donnacona, 331 rolls.
H. G. Craig Co., A.C.D., Donnacona, 354 rolls.
R. A. Olsen, G.D.D, Donnacona, 330 rolls
R. L. Flores, (Brownsville, Tex.), Federal Mariner, Montreal, 287 rolls, 17 pkgs.
H. G. Craig Co., Newscarrier, Donnacona, 369 rolls.
News Syndicate Co., Ethel Tombs, Gatineau, 327 rolls.
R. A. Olsen, G.T.D., Donnacona, 319 rolls.
News Syndicate Co., Robert Barnes Fiertz, Thorold, 1150 tons.
International Paper Sales Co., Bret Harte, Dalhousie, 7683 rolls.

Parchment Paper

H. Reeve Angel & Co., Inc., Alwaki, Antwerp, 1 cs.

(Continued on page 50)



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Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

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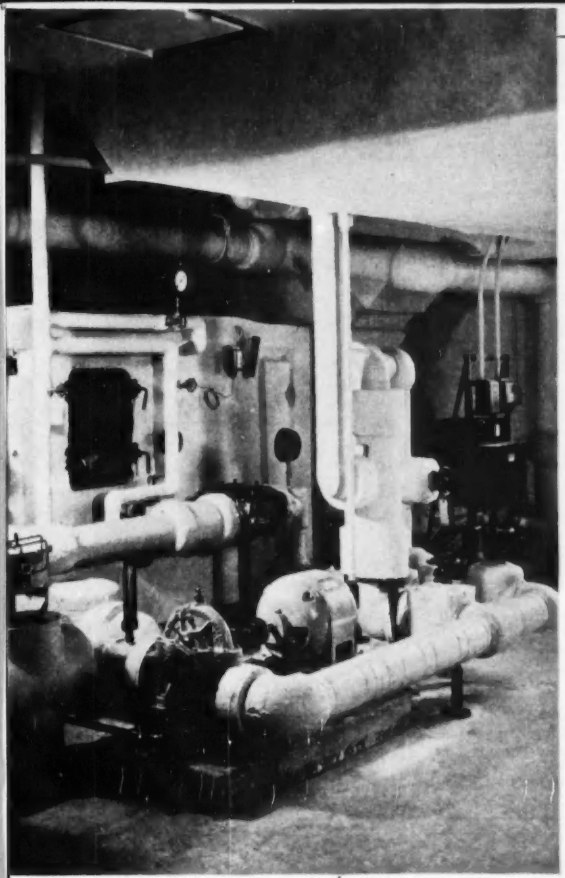
Samples of caps or cores will be gladly submitted

ELIXMAN PAPER CORE COMPANY, INC.
CORINTH, N. Y.



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IMPORTS . . . . . .

(Continued from page 48)

Wallpaper

Hudson Shipping Co., Washington, Southampton, 1 cs.
Intermaritime Forwarding Co., Media, Liverpool, 10 cs.

Paper Napkins

H. W. Robinson Co., Falstria, Copenhagen, 61 cs.

Wrapping & Packing Paper

Gourmet Imports, Inc., Mohamed Ali el Kebir, Genoa, 30 cs.

Cigarette Paper

Colombia Tobacco Co., Queen Mary, Southampton, 1 pcl.

Tracing & Drawing Paper

Elof Hansson, Inc., American Lawyer, Antwerp, 2 cs.

Tissue Paper

Stevens Nelson Paper Corp., Arnold Maersk, Kobe, 13 cs. (insulating).

Filter Paper

H. Reeve Angel & Co., Inc., American Merchant, London, 16 cs.

Gummed Paper

B. F. Drakenfeld & Co., Media, Liverpool, 21 cs.

Strawboard

Consolidated Novelty Co., Algonquin Victory, Antwerp, 35 bls.

Stencil Paper

Stevens Nelson Paper Corp., Paducah Victory, Kobe, 8 cs.

Photo Paper

J. J. Gavin & Co., Queen Mary, Southampton, 4 cs. (unsensitized).
Lep Transport Inc., American Merchant, London, 27 drums (base).

Writing Paper

Freedman & Slater, De Grasse, Havre, 1 cs.

Drawing Paper

Chicago Cardboard Co., American Merchant, London, 2 cs. (handmade).

Binding Paper

Stevens Nelson Paper Corp., De Grasse, Havre, 1 cs.

Paperhangings

Hudson Shipping Co., De Grasse, Havre, 30 cs.
Downing & Co., De Grasse, Havre, 2 cs.
American Express Co., De Grasse, Havre, 2 cs.

Rags, Baggings, Etc.

Loumar Textile By Products Co., Averdyk, Antwerp, 214 bls. old bagging.
Irving Trust Co., Arnold Maersk, Shanghai, 50 bls. threadwaste.
New England Waste Co., Arnold Maersk, Shanghai, 100 bls. yarn waste, 200 bls. cotton waste.
C. Comiter, Arnold Maersk, Shanghai, 200 bls. cotton waste.
Camden Fibre Mills, Arnold Maersk, Shanghai, 100 bls. cotton waste.
Shiro Trading Corp., Arnold Maersk, Shanghai, 175 bls. cotton waste.
E. J. Keller Co., Inc., Algonquin Victory, Antwerp, 322 bls. old bagging.
Guaranty Trust Co., Algonquin Victory, Antwerp, 69 bls. old rags.
(———), Algonquin Victory, Antwerp, 95 bls. cotton waste.
E. J. Keller Co., Inc., Nyhaug, Genoa, 64 bls. bagging.
H. Adlerstein, Nyhaug, Genoa, 112 bls. old jute bagging.
Melshers, Inc., Paducah Victory, Shanghai, 131 bls. cotton waste.
C. Comiter, Paducah Victory, Shanghai, 100 bls. picker waste.
(———), Paducah Victory, Shanghai, 139 bls. bagging
E. J. Keller Co., Inc., Paducah Victory, Shanghai, 62 bls. heavy waste bagging.

Old Rope

International Purchasing Co., Argentina, Copenhagen, 81 bls.

Casein

Tupman Thurlow Co., Villar, Buenos Aires, 1000 bags (lactic).

Gluestock

Manhattan Paste & Glue Co., Froste, Buenos Aires, 31 pkgs.

Woodpulp

Castle & Overton, Inc., Topdalsfjord, Tofte, 2700 bls. dry bleached sulphite pulp, 1000 bls. prime dry bleached sulphite pulp.
The Borregaard Co., Inc., Stavangerfjord, Oslo, 300 bls. dry bleached sulphite pulp.

BOSTON

Empire Fiber Co., Arnold Maersk, Hong Kong, 200 bls. cotton waste.

BALTIMORE

E. J. Keller Co., Inc., Nyhaug, Genoa, 64 bls. bagging.

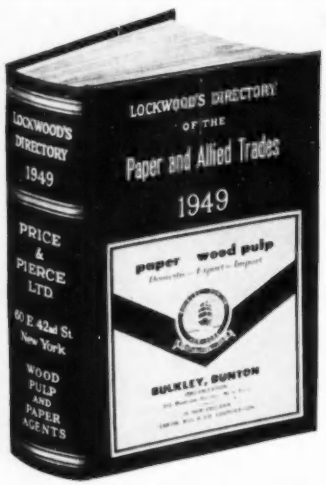
NORFOLK

A. de Vries Trading Corp., Algonquin Victory, Antwerp, 64 bls. old bagging.
E. J. Keller Co., Inc., Algonquin Victory, Antwerp, 140 bls. jute waste, 57 bls. jute waste bagging.
(———), Algonquin Victory, Antwerp, 63 bls. old bagging.
Loumar Textile By Products Co., Algonquin Victory, Antwerp, 247 bls. jute mill waste.
National City Bank, Hellenic Beach, Genoa, 189 bls. old bagging.
New England Waste Co., Wideawake, Santos, 438 bls. old waste bagging.

U. S. IMPORTS WOODPULP

Preliminary, April, 1949

Item	Country of Origin	Short Tons
Mechanical		
Unbleached	Canada	13,286
	Finland	1,175
		14,461
Screenings	Canada	376
Bleached	No Transactions	
Chemical		
Sulfite, Unbleached	Canada	16,694
	Finland	2,461
		19,155
Screenings	Canada	220
Sulfite, Bleached: Rayon and Special Chem. Grades	Canada	8,537
Other	Canada	15,089
	Sweden	111
	Norway	1,275
	Finland	181
		16,656
Sulfate, Unbleached	Canada	9,959
	Sweden	313
	Finland	1,250
		11,522
Sulfate, Bleached	Canada	23,083
	Sweden	1,310
		24,393
Soda, Unbleached and Bleached	Canada	2,197
Totals, April	Canada	89,441
	Sweden	1,734
	Norway	1,275
	Finland	5,067
		97,517



1949 EDITION

1420 PAGES OF INFORMATION UNOBTAINABLE ANYWHERE ELSE IN ONE SINGLE VOLUME

If these lists of pulp and paper mills—converters—paper merchants—mill officials—equipment manufacturers were sold separately—you would pay ten times the cost of this one complete directory.

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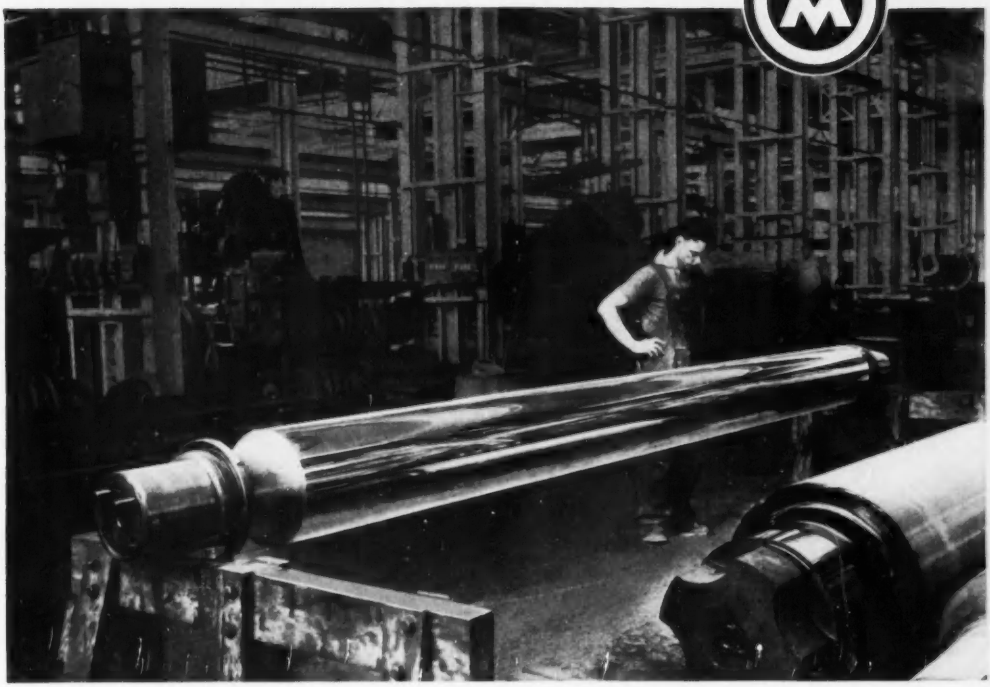

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Midvale Forged Steel Hardened and Ground Calender Rolls for paper mills are *extra strong* . . . tensile strength, 100,000 pounds per square inch . . . true elastic limit, 70,000 pounds per square inch . . . elongation, 20% in 2 inches . . . reduction of area, 45%. They are *extra stiff* . . . less wear, no washboarding, reduced or eliminated bearing trouble, less side thrust and stack-climbing. They are *harder* . . . need less grinding. And they have a *very high finish* . . . closer grained, more uniform, free from pin-holes, sand-holes, soft spots and crystalline pattern.

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Custom Steel Makers to Industry

CORROSION AND HEAT RESISTING CASTINGS
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FORGINGS AND RINGS

LITERATURE

Labor Relations Institute, 1776 Broadway, New York 19, N. Y. Survey on labor-management relations. Shows foremen lack training and communication with top management. The study includes a complete statistical breakdown and cross-tabulation of questionnaires sent to foremen in ten different companies. Practically all agreed that their companies did tell them about *working rules and regulations,* but many stated that they were not aware of any company effort in effecting communications liaison between supervisory and top levels of management. Outstanding finding of the survey was a difference of opinion as to whether companies do tell foremen about new developments in personnel policies; about trends in the company's business, outlook for the future, etc.; provide company-supervised training for foremen in handling employee relations. Study cost is $.50.

"Operation Productivity," initiated recently by the Institute, has been enveloping a wide variety of industries in its three-pronged attack on productive efficiency of top management, foremen and rank-and-file workers. Such subjects as time waste, working conditions, simplified methods, inplant gambling, office procedures and absenteeism, are discussed in "Practical Methods In Labor Relations," the Institute's three-times-a-month report to members. Free copies available.

International Nickel Co., Inc., 67 Wall street, New York 5, N. Y. Booklet, "How to Get Longer Service From Your Pumps." Contains eight illustrated pages in which four factors affecting pump life and performance are discussed. Definite case histories are cited of exposure to sewage, brakish harbor water, sour crude petroleum, marine growth, high pressures, and grit, as well as combinations of these influences.

Lawrence Machine & Pump Corp., 371 Market street, Lawrence, Mass. Bulletin 203-4, "Lawrence Acid and Chemical Pumps." Illustrates and describes centrifugal pumps for applications where corrosive and abrasive liquids must be handled. Provides specifications, sizes and capacities, operating characteristics, also chart of recommended metals and alloys for pumping various liquids.

The Books Arts Club, University of California, Berkeley, Calif. Book, "Kamisuki Chohoki, A Handy Guide to Papermaking," by Kunisaki Hihei. Translation by Charles E. Hamilton of one of the earliest Japanese books on papermaking. Reproduced from a 1925 edition with original Japanese text and drawings faced with English translation. Translator's preface sketches life of author and explains weights and measures and other terms used. Other explanatory notes follow the text.

McGraw-Hill Book Co., 330 West 42nd street, New York 18, N. Y. Book, "Textbook of Wood Technology, Volume I," by H. P. Brown, A. J. Panshin, C. C. Forsaith, price $6. Formerly published under the title "Commercial Timbers of the United States," the revised and rewritten book offers factual information on the structure, identification, general properties, uses and major defects of commercial wood in the U.S.

LETTERS

Gentlemen:

I am trying hard to get a position in a paper or pulp mill where I am able to improve my knowledge and capabilities in respect of the manufacture of all sorts of paper.

I was born on 10-6-1929 at Maschendorf, attended the high school at Trautenau for 6 years after which I passed the final examination. I began my practical work at the firm Eichmann & Co., Arnau, and was employed with this firm from May 1945 till April 1946. From June 1947 till May 1948 I continued my practical training in the paper industry at the firm Hannoversche Papierwertung G.m.b.H., Hannover. From Aug. 1948 till Dec. 1948 I got a special theoretical and practical improvement in the pulp mill of Hannoversch Papier-Fabriken A. G., Alfeld-Gronau, and from Dec. 1948 until now I am employed as a volunteer in the paper mill of the same firm and intrusted with the work of an assistant managing director.

In March 1949 I have passed the examination of a marksman.

I am fully experienced in the manufacture of letter paper, packing paper, hand made paper, tissue paper, parchment, photo paper, paper for bank notes, and sulfit cellulose.

The practical training included every work, thus I am able to handle every machine which are used in German paper and pulp mills.

I have a fair knowledge of the English language both oral and in writing.

I kindly ask you to help me in any way whatsoever and would greatly appreciate your advice and kind consideration.

Perhaps it would be possible to insert an advertisement in your paper or to supply me with the address of a firm for direct communication.

Trusting that the matter may receive your close attention and hoping to hear from you at an early date, I am:

EDGAR BOENISCH
(20a) Alfeld/Leine,
Gabelsbergerstr. 31
British Zone, Germany

BIDS

Army Invitations to Bid

N. Y. QM Purch. Office

QM-30-280-1286—Folders, File, Manila, Vertical, Flat Type, Plain Bottom, Heavy Weight, 100 per box, 5/5 cut, 9½ x 11¾"—2,000,000 each and 5/5 cut, 9½ x 14¾—1,000,000 each. Bids will be opened 31 May 1949 at 1:30 PM (EDST) at the New York office. Delivery: to be completed during September 1949. This procurement is for the U. S. Army.

QM-30-280-49-1287—Ink, Stencil, Opaque, White—2,000 gallons. Bids will be opened 31 May 1949 at 2:30 PM (EDST) at the New York office. Delivery: to be delivered on or before 31 October 1949. This procurement is for the U. S. Army.

QM-30-280-49-1302 — Item 1—Sheets — 9¾ x 14", 30 lb. white, transparent, overlay, tracing—100 reams. Item 2—Sheets 18½ x 20" 30 lb. White, transparent, overlay, tracing—800 reams. Bids will be opened 23 May 1949 at 11 AM (EDST) at the New York office. Delivery: to be completed by 30 June 1949. This procurement is for Turkish Aid.

QM-30-280-49-1283—Paper, Duplicator, Liquid Process, Copy Paper, Sub-20, Pink, and also white, size: 8½ x 10½ and 13 x 6—34,000 reams. Paper, T/W, Manifold, Sulphite, Sub-9, Pink, 8½ x 10½—10,000 reams.

Bid opening—27 May '49 at 4 PM (EDST). Del: to be completed Sept. 1949.

QM-30-280-49-1276—Tape, Adhesive, Pressure Sensitive, Water-Resistant, Acetate Fibre backing, various widths and lengths—68,000. Bids will be opened 27 May 1949 at 11:30 AM (EDST) at the New York office. Delivery: to be completed by 15 August 1949. This procurement is for the U. S. Army (Signal Corps).

QM-30-280-49-1277 — Item 1 — Paper, Waxed, Shredded, in 100 lb. bales, baled in burlap, plain or printed—68,000 bales. Item 2 to 9—Wadding, Creped, Cellulose, 20 lb. Kraft backing, Non-Absorbent, 14" thick x 12" wide x 215 ft rolls—

(Continued on page 54)

MEISEL MACHINERY IS HELPING IN ALL FIELDS

Cigarette	Wax	Photographic	Jet Propulsion
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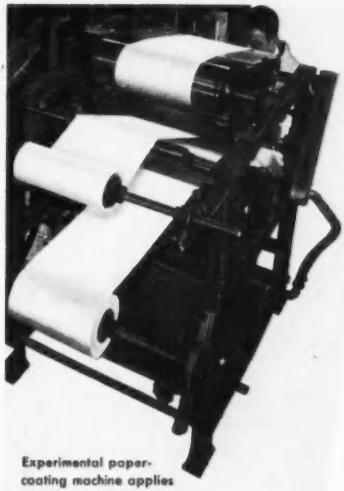
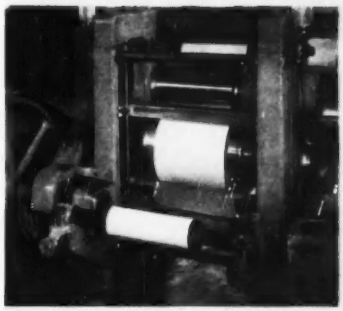
MEISEL PRESS MFG. CO. 950 Dorchester Ave., Boston



Experimental paper-coating machine applies specific TITANOX formulations.



This pilot calender is another piece of test equipment used to prove the value of TITANOX coatings.

This proof press is the final "proving-ground" for TITANOX formulated coatings. Results here show TITANOX-RCHT assures clear printing and vivid pictures — minimizes "show-through."

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Better Coated-Papers

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the brightest name in pigments

In our Technical Service Laboratory experimental and production tests with paper-coating equipment are constantly being run to develop more effective coatings. In these tests and in large scale runs in the paper industry TITANOX-RCHT has proved its value for making light-coated paper print like heavy.

This rutile-calcium pigment imparts great opacity and brightness to papers and permits the use of modern light weight, thin coatings. The trend to this type of coating make these advantages of TITANOX-RCHT important to you:

Highest opacity and brightness at lowest cost.
Minimizes "show-through" and after-yellowing.
Overcomes transparency from wax, resins, etc.

Our Technical Service Laboratory with modern paper-coating equipment stands ready to help you solve your paper-coating pigment problems. Write: Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; 104 South Michigan Avenue, Chicago 3, Ill.; 2600 South Eastern Avenue, Los Angeles 22, Calif. Branches in all other principal cities.

TITANOX

the brightest name in pigments

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

7587

BIDS

(Continued from page 52)

and various other thickness and width—6,490 rolls. Bids will be opened 1 June 1949 at 1 PM (EDST) at the New York office. Delivery: bidder to state best delivery he is in a position to offer. This procurement is for the U. S. Army (Signal Corps.)

QM-30-280-49-1284 — Paper, Carbon, T/W, Black, Light Weight, Medium Coating, size 8 x 10½ (200 shts to box)—106,225 bxs. Bids will be opened 27 May 1949 at 10:30 AM (EDST) at the New York office. Delivery: to be completed during September 1949. This procurement is for the U. S. Army.

QM-30-280-49-1300 covering: Item 1—Paper, Wrapping, Kraft No. 3, Roll Form, Basis weight 30 lbs., 9" Diameter, 30" wide—10,000 rolls. Item 2—Same as above—36" wide 10,000 rolls. Bids will be opened 1 June 1949 at 3 PM (EDST) at the New York office. Delivery: to be completed during November 1949. This procurement is for the U. S. Army.

QM-30-280-49-1305—Item 1 to 5—Paper, Typewriter, Bond, Sub 20, White, various colors, lengths and widths. 3,500 rms. Bids will be opened 1 June 1949 at 2:30 PM (EDST) at the New York office. Delivery: to be completed by 30 September 1949. This procurement is for the U. S. Army.

QM-30-280-49-1308 — Power Tool Unit — 150 each. Bids will be opened 27 May 1949 at 11:30 AM (EDST) at the New York office. Delivery: to be completed by 30 September 1949. This procurement is for the U. S. Army.

QM-30-280-49-1293—Item 1—Bags, Paper Coffee, Glassine Lined, w/Metal Tie, 3 lb., 500,000 each. 2—Bags, Glassine, 5¾" x 7¼" (Bag, 25 lb #1 White), 400,000 each. 3—Paper, Coffee, 5 lb., 2,150,000 each. 4—Paper, Wrapping, Waxed, self-sealing, white, sheet form, 30 lb., 12 x 15", 2,600,000 sheets. 5—Paper, Parchment, Vegetable, sub-27 16 x 20" 800,000 each. 6—Container, ice cream, paperboard, locktop (type)—2½ gal. capacity, 250,000 each. Bids will be opened 2 June 1949 at the New York office at 11 AM (EDST). Delivery: to be completed during October 1949. This procurement is for the U. S. Army.

QM-30-28-49-1294—Sheet, Flat, Fiber, Corrugated, Double Face, A or C Flute—various widths & various lengths 4,800 ea. Bids will be opened 2 June 1949 at 1 PM (EDST) at the New York office. Delivery: to be completed by 15 Sept. '49 or earlier. This procurement is for the U. S. Army (Signal Corps).

QM-30-28-49-1292 covering: Item—1 to 7—Paper corrugated, single face, rigid, corrugated and backing sheets, various widths and lengths—5,000 rolls. Item 8 to 10—Paper, Corrugated, Single face, rigid corrugated and backing sheets shall be 100 lb kraft A or C Flute, 48" x 250', 450 rolls. Bids will be opened 2 June 1949 at 3 PM (EDST) at the New York office. Delivery: to be completed by 30 September 1949 or sooner.

This procurement is for the U. S. Army (Signal Corps).

Army Bids Received

N. Y. QM Purch. Office

Five bids have been received on:

QM-30-280-49-1263 covering sheets, Yellow Goldenrod, Masking Paper, Enamel Finish, Double Coated, 80 lb. Weight, 19" x 25". Directive quantity: 150 reams; total quantity on all bids received: 750 reams. Bidders, quantities and prices are as follows:

Crane-Gallo Artist Supplies, New York City 1, 150 reams @ $7.75 (2% 20 days).

Mudge Paper Co., Baltimore, Md., 150 reams @ $7.48 Net.

Mathers-Lamm Paper Co., Wash., D. C., 150 reams @ $7.75 (¼ of 1% 20 days).

Marquette Paper Corp., Chicago, Ill., 150 reams @ $6.40 net.

Walker Goulard Phelps Co., Inc., New York City, 150 reams @ $6.66.

This procurement is for Turkish Aid.

Fifty-one bids have been received on:

QM-30-280-49-1189 covering the following items:

Paper, Wrap, Grseprf, 24", 416 rolls @ $2.46 to $8.64. Paper, Wrap, Grseprf, 36", 8,184 rolls @ $3.85 to $12.80. Paper, Wrap, Grseprf, Kraft, 24", 123,522 rolls @ $.03545 to $2.54. Paper, Wrap, Grseprf, Kraft, 36", 80,576 rolls @ $5.88 CWT to $7.24. Paper, Wrap, Tissue, 24 x 36", 210,000 per rm @ $1.2489 to $1.795. Tape, Gummed, Sealing Paper, 2", 224,700 per rl @ $.309 to $.388. Tape, Gummed, Sealing Paper, 3", 655,800 per rl @ $.4646 to $6.00. Tape, Masking, Adhesive, ½", 222,240 per rl @ $.2399 to $.36. Tape, Masking, Adhesive, 1", 12,432 per rl @ $.530 to $.56. Tape, Masking, Adhesive, 1", 296,000 per rl @ $.4499 to $.56. Tape, Masking, Adhesive, 2", 38,472 per rl @ $1.04 to $1.12. Tape, Masking, Adhesive, 2", 188,100 per rl @ $.8799 to $1.12. Wadding, Cellulose, Creped—24¼ Wide, 7,884 per rl @ $5.25. Wadding, Cellulose, Creped—20" wide, 42,630 per rl @ $2.52 to $4.32. Wadding, Cellulose, Crepe—20" wide, 19,270 per rl @ $3.39 to $5.24.

This procurement is for the U. S. Air Force.

Twenty-four bids have been received on:

QM-30-280-49-1190 covering 10,000 rolls Paper, Wrapping, Wax, Self-Sealing, White, Roll Form, 25 lb. waxed to 38 lb., Bread Wrapping Machine, 16". Total quantity on all bids received: 195,300 rolls from $10.37 to $17.86 per roll.

This procurement is for the U. S. Army.

Six bids have been received on:

QM-30-280-49-1302 covering sheets, 9¼ x 14", 50 lb white, transparent, overlay, tracing, and also size 18½ x 20". Directive quantity: 900

The set of a sail can win the race.
The finish of the sheet can win the order.
The *Draper Felt* is there with the finish.

The DRAPER Felt

DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856

CANTON, MASSACHUSETTS

RALPH E. BRIGGS, *Sales Manager*

● BRADFORD WEST, *Pittsfield, Mass.* ● WILLIAM N. CONNOR, *Jr., Canton, Mass.* ● L. H. BREYFOGLE, *Kalamazoo, Mich.* ● ● WALTER A. SALMONSON, *2514 Northeast 59th Ave., Portland, Oregon* ● L. L. GRIFFITHS, *Jr., Kalamazoo, Mich.* ● ● HAROLD H. FISH, *Syracuse, N. Y.* ●

reams; total quantity on all bids received: 5,400 reams. Bidders, quantities, and prices are as follows:

Bee Paper Co., Inc., Brooklyn, N. Y., 100 reams—9¾ x 14" @ $1.18, 800 reams—18½ x 20" @ $3.11.

Eugene Dietzgen Co., Inc., New York City 10, 100 reams—9¾" x 14" @ $1.60, 800 reams—18½ x 20" @ $4.20.

Keuffel & Esser Co., New York City, 100 reams—9¾" x 14" @ $3.90, 800 reams—18½ x 20" @ $8.60.

Hartford City Paper Co., New York City & Hartford City, Ind., 100 reams—9¾" x 14" @ $1.21 1% 20 days, 800 reams—18½ x 20" @ $3.14 ½% 30 days.

Charles W. Spiedel & Co., Inc., Phila., Pa. 100 reams—9¾" x 14" @ $6.80, 800 reams—18½ x 20" @ $19.25.

J. H. Weil & Co., Phila., Pa., 100 reams—9¾" x 14" @ $2.80, 800 reams—18½ x 20" @ $6.75.

This procurement is for the Turkish Aid.

AWARDS

Army Awards Made

N. Y. QM Purch. Office

One award has been made on:

QM-30-280-49-1143 covering Tape, Blank, Recording, teletype, 11/16 width, white, 8" OD roll, 2" ID, Fiberboard Cors; Oiled, w/end of tape signal: U/W; Teletype perforator-Distributor set—970,000 each, to Paper Manufacturing Company, 5th & Willow Streets, Philadelphia 23, Pa.; price range from: $.1695 to $.1874. Directive quantity was 970,000 each.

This procurement is for the U. S. Army.

Navy Award Made

N. Y. Navy Purch. Office

Inv. No. 4533 covering 3,960,000 Tags, shipping to Dennison Mfg. Co., Framingham, Mass. from $.0032 to $.0082 each.

OBITUARIES

S. Newton Finney, 61, vice-president of the John Waldron Corp., New Brunswick, N. J., passed away suddenly at Metuchen, N. J., on May 22. Mr. Finney joined Waldron in 1923, but because of illness had been more or less inactive for the past several years. Surviving him are his widow, two sons and a brother.

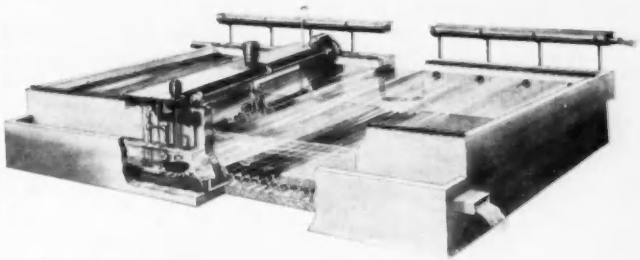
Col. C. H. J. Jones, 73, president of various Canadian companies, including the Mersey Paper Co., Ltd., Liverpool, N. S.; and Price Bros. & Co., Ltd., Quebec, P. Q., died in Quebec on May 22. He supervised construction of Mersey's mill at Liverpool in 1928, the first to be built in Nova Scotia, and became its president when construction was completed. During the first World War he raised and commanded the 227th Engineer Battalion of the Canadian Expeditionary Force. This unit was later pressed into action as assault troops, despite its engineer designation, and Colonel Jones received the Order of the British Empire. He entered the pulp and paper field after the war and as an engineer helped in the planning, construction or redesigning of a number of mills and related companies. At the time of his death he was president of the Kenogami Land Co., Jonquiere Pulp Co., Riverbend Co., Ltd., Price Navigation Co., Ltd., Price Brothers Forest Protective Ass'n., Ltd., Markland Shipping Co., Ltd., Rover Shipping Co., and Schooner Trawler Fishing Co., Ltd., as well as the Mersey and Price companies. He was a director of a number of other concerns and was a past president of the Canadian Pulp & Paper Ass'n.

William Hartley, 63, chief clerk of J. G. Whyte & Son, Ottawa, Can., died at his home in that city on May 23, following a heart attack. Mr. Hartley is survived by his widow and one daughter.

Herman A. Otto, superintendent of the Stony Brook Division of the American Tissue Mills, Holyoke, Mass., died at his home on May 16 following a brief illness. Surviving him are his widow, Mrs. Bettina (Ely) Otto; and a son, Carl S. Otto.

R. S. Plant, former president of the Canadian Forestry Ass'n. of British Columbia, died in Vancouver, B. C., of a heart attack, recently.

H. W. Boseley, for many years associated with the Abana Products Co., Chicago, died on May 16.

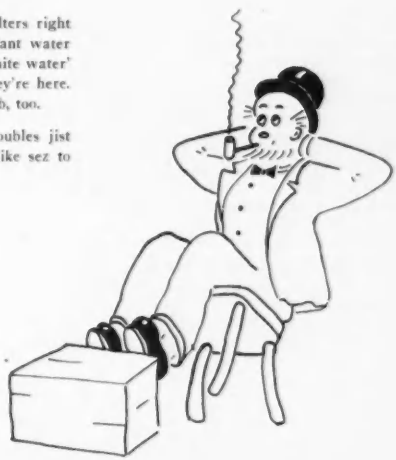


"Shure 'n it's a HARDINGE AUTOMATIC BACKWASH SAND FILTER yer lookin' at—best sand filter made.

"Cleans its own filter bed, it does—*while operatin'!* An' all automatic, too, I niver touch it.

"Yep, we got two o' thim filters right here in this mill—one on plant water supply an' one reclaimin' 'white water'—so easy to run I fergit they're here. Both o' thim doin' a swell job, too.

"If y' got water treatin' troubles jist write Hardinge; tell 'em Mike sez to send y' Bulletin 46-14."



HARDINGE

COMPANY INCORPORATED

YORK, PENNSYLVANIA — 240 Arch St. • Main Office and Works

NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6

SAN FRANCISCO 11—24 California St. • 200 Bay St.—TORONTO 1

CLEARING HOUSE

HELP WANTED

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.
TF

WANTED
PAPER RESEARCH CHEMIST

to supervise group of 6 to 8 men on development of paper products in research laboratory of upper midwest manufacturer of bleached groundwood, sulphite and kraft printing and converting papers. Must be well grounded in paper chemistry and manufacturing processes with development experience in these fields. Prefer man 30 to 40 years old with a good knowledge of book grade bleached papers and enamel grade coated papers. In reply give personal history, training, experience and salary expected.

Address Box 49-52, care Paper Trade Journal. **TF**

WANTED
TECHNICAL SPECIALTY SALESMAN

To a young man who has had at least five years selling experience an unusual opportunity is afforded. Applicant's technical education should have been in one of the following fields — chemistry, paper chemistry or organic chemistry. It is essential the man have had at least five years actual selling experience, preferably selling to manufacturers and converters. Address The Munising Paper Co., 135 South LaSalle Street, Chicago 3, Illinois.

ELECTRICAL ENGINEER

Fox River Valley (Wis.) paper mill wants electrical engineer experienced in all phases of maintenance and layout. Give complete personal and business history in letter of application. Write Box 49-244 care Paper Trade Journal. J-9

HELP WANTED

MEN WANTED
Positions Open

General manager and general superintendent for mills in the Middle West; mechanical designer for automatic machines $10,000-$12,500 wk.

Salesman for glassine and greaseproof papers; operators for paper napkin machines or cellophane wrapping and box gluing machines.

Millwright; machine tenders; back tenders; beater engineers.

We invite correspondence, (Confidential) with mills seeking executives and with executives seeking new positions.

CHARLES P. RAYMOND SERVICE, Inc.
291 Washington St., Boston, Mass. J-2

WANTED
DEVELOPMENT ENGINEER

Graduate engineer for development work on corrugated containers and container testing at large corrugated box plant in Southeast. Several years experience in design, evaluation, and manufacture of corrugated containers required.

Address
P. O. Box 1828
Savannah, Ga.
J-2

$7000-8000—Asst. Chief Engineer—Design development, Paper Mill Machinery.
Head Millwright or Mechanic. Experience Head Oiler or Lubrication Supervisor highly desirable.
Mechanical Engineer—Paper Mill experience; Heavy on Drafting.
Instrumentation Engineer. Experienced in control instrumentation work.
Applications desired from trained pulp and paper mill executives considering new positions.
RICE EMPLOYMENT AGENCY
Radio Center Building
Little Rock, Arkansas J-2

A REAL OPPORTUNITY for man with paper mill experience to invest and take active part in organization whose business is expanding rapidly. Must be able to meet top executives. Address Box 49-262 care Paper Trade Journal. J-2

OPERATOR WANTED—Thoroughly experienced in paper napkin machines. Working knowledge of box sealing machines, box glueing machines and cellophane wrapping machines also desirable. Steady position and excellent wages. Address Box 49-256 care Paper Trade Journal. J-9

WANTED: — GENERAL SUPERINTENDENT to take charge of PAPER MILL manufacturing and converting tissue papers. Write stating experience and references. Address Box 49-276 care Paper Trade Journal. J-9

WANTED—BEATER ENGINEER with experience in the preparation of stock for cylinder machine products. Mill located in Massachusetts. Write Box 49-272 care Paper Trade Journal. J-16

SITUATIONS WANTED

DIRECTOR RESEARCH or COORDINATOR—College graduate. 20 years experience Research, Production, Manufacturing, Converting Paper, Plastic Sheeting, Synthetic Coatings, Adhesives, Imagination, Know How, Initiative, Items, Processes. Seeking new responsibilities with well established company in Research Management. Address Box 49-238 care Paper Trade Journal. J-9

FOR SALE

GOOD VALUES—NEW & USED

34" Beck Sheeter, one year old.
58" and 78" Hamblet Sheeters.
34" Camachine No. 6 Slitter.
32" Hobbs and 34" Inman shear cut Slitters —very cheap.
39" Chandler & Price Automatic Power Paper Cutter.
New 44" National Auto. Power Cutters and 36" National Hydraulics.
Baling Presses—both hand and power.
Brackett 3-knife Trimmer.
28 x 41 Thomson Cutter & Creaser.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18
(Plant at Stamford, Conn.)
TF

FOR SALE

A 26" Five-Color Roto-Gravure Press in excellent condition at a genuine bargain price complete with drive, extra parts and special tools. For complete information, write Box 49-220, care of Paper Trade Journal. J-16

NEW INSULATING BOARD EQUIPMENT

Oliver Board Machine—8' dia. x 13' wide
Downingtown Press Section
Coe Wet Saw
Coe Tipple
Coe Dryer—184' enclosed length
Mereen-Johnson Dry Saws
Switchboards, Motors etc.

J. F. D'Antonio—Consultant
420 Lexington Avenue, New York 17
Phone—LExington 2-2035 J-2

RATES FOR CLASSIFIED ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $2.50. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $2.50.

WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $2.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.

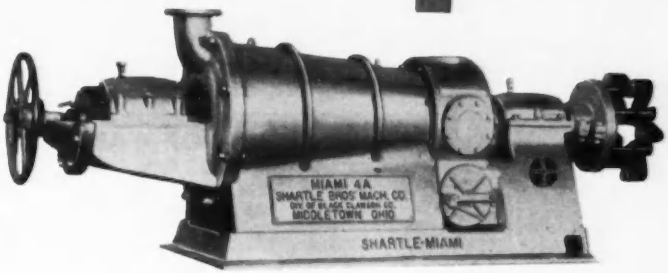
Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 18, N. Y.

FREDDIE FIBER TALKS:

SAYS FREDDIE: "When I'm Hydrafined I'm really ready to go into a sheet of paper or board. Going thru a HYDRAFINER or a Hydracycling system hydrates me just enough, fibrillates and frays me just enough, to make me a sort of super-special fiber. What's more, I get off with very little cutting in those old jordans." ¶ Freddie has it all figured out. When he is prepared by the Shartle-Dilts balanced refining method—Hydrafining and jordaning in the right proportion—he really does produce a finer product. ¶ The long list of 400 installations that today are finding it profitable to Hydrafine their stocks is pretty persuasive evidence that all mills should at least launch an investigation.

No. 00 LATEST HYDRAFINER

No. 4-A ONE OF TEN MIAMI JORDANS



Address Shartle or Dilts

SHARTLE BROS. MACHINE COMPANY, Middletown, Ohio
DILTS MACHINE WORKS, *The Kohler System,* **Fulton, New York**
Also Chicago Office for The Kohler System line at 159 E. Chicago Ave., Chicago 11

DIVISIONS OF THE BLACK-CLAWSON COMPANY, HAMILTON, OHIO
Western Sales Office: Mayer Building, Portland, Oregon
Associate: ALEXANDER FLECK LIMITED, Ottawa, Ontario, Canada
Subsidiary: B-C INTERNATIONAL, LTD., 16 Catherine Place, Victoria, London S. W. 1, England

FOR SALE

BALER
1—1000 lb. Economy with motor
1—Ohio
BEATERS
1—66 x 61" Jones iron tub with perforated backfall and ragger, new in 1940, new roll in 1945
1—62 x 56" Valley Iron Works iron tub
2—1000 lb. Jones breaker
2—Rabus, rolls 75 x 55", bronze filled
1—44 x 42" Jones
SUPER CALENDERS
1—100"; 1—92"; 1—74"; 1—60"
SHEET CUTTERS
1—130" Horne duplex with duplex layboy
1—124" new Hamblet with duplex layboy and two 10 roll backstands which take 50" dia. rolls
1—104" Beloit duplex
1—100" Hamblet duplex with layboy
1—94" Clark with layboy
1—92" Dillon duplex with folder
1—90" Hamblet
1—70" Hamblet with layboy
1—64" Hamblet with two roll backstand
REAM CUTTERS
1—56" Smith & Winchester
1—50" Oswego
1—48" Acme

1—39" Seybold
DRYERS
1—12 ft. x 108" Yankee
1—50" Oswego
1—48" Acme
1—39" Seybold
DRYERS
1—12 ft. x 108" Yankee
1—12 ft. x 132" Yankee
2— 8 ft. 174" Yankee
1—48" x 82" Yankee
DRYERS continued
5—60 x 174"
3—48 x 118"
3—48 x 106"
2—42 x 73"
1—48 x 73"
Section of 21—36 x 76", now operating
Section of 16—36 x 62", now operating
Section of 15—48 x 46"
Section of 4—54 x 46"
Section of 2—36 x 40" copper
Section of 3—28 x 40"
EMBOSSING MACHINES
45" Dornbusch, three sets rolls
30" Waldron
28" Textile, three sets rolls

PASTING MACHINE
1—40" and 1—60"
PRESS PART
With rolls from 24" x 144" to 14" x 42" with frames, etc.
PULPER
1—Number 2 Lannoye
PUMPS
2—12 x 12" Goulds triplex
1—8 x 12" Goulds triplex
2—8 x 10" Goulds triplex
SCREENS
Bird No. 3 A
Birg No. 2 A
Bird No. 2
Bird B A
Jones Leith Walk
Nuwa & White
PAPER MACHINES
1—64" trim Tissue with 8 ft. dia. dryer
1—74" trim Fourdrinier with special bevel gear drive
WASHER CYLINDER (Octogon)
2—44" x 43½" Face with iron work
ROTOGRAVURE MACHINE
1—28" with 21 motors, excellent, five color, anti-friction

FRANK H. DAVIS CO. 175 Richdale Ave., Cambridge, Mass.

TF

FOR SALE: 1—36-2 Sprout Waldron Refiner #8289 with Peripherial Control Mechanism and 400 HP 3 phase 60 cycle 440 volt motor.

1—Screw Feeder for 36-2 mill with ¾ HP 3 phase 60 cycle 440 volt motor. This unit has less than 200 operating hours. Address Box 49-258 care Paper Trade Journal. J-9

FOR SALE

2 Garment Bag Machines, complete with AC motors and Reeves drives. Formers to make laundry, millinery and other allied bags. Both machines now in daily production. Address Box 49-263 care Paper Trade Journal. J-2

FOR SALE

44" & 65" Paper Power Cutters, like new; Casters; Waxers; Sheeters; Die Cutters; Printers; Slitters & Rewinders. Write for Price Bulletin #155 listing over 70 Paper Converting Machines. Priced exceptionally low.

South Wabash Engineering Co. Inc.
2037 S. Wabash
Chicago, Ill. TF

CHESTNUT WET LAP FOR SALE

8 Air Dry Tons per day of pure chestnut wet lap available for immediate shipment. Write for details and sample.

CHAS. A. SCHIEREN COMPANY
Bristol, Va. J-2

FOR SALE

1—Triple Effect Zaremba Evaporator, 84" diameter, each effect 1200 sq. ft. of heating surface, 440—1" steel tubes, 2 tilt traps, 2 moisture separators, interconnecting piping and barometric condenser, traps and 3 liquid level controllers. Vacuum pumps are not included. Available for immediate shipment. May be inspected at any time.

2—#420 Black & Clawson 10" x 16" Triplex Geared Stock Pumps, bronze fitted, belt drive, 20" x 10" pulley.

2—Pusey & Jones Triplex Stock Pumps, 10" diameter cylinder, 20" stroke, 25 revolutions of crank shaft will throw 469 gallons. Pumps driven on jack shaft arrangement, gear and pinion drive.

1—Duo-arrangement comprising Van de Carr patent stock inlet combined with 2 standard slices of 14" and 8" h.gh standard design with center and end adjustment supports on adjustable side frames. Stock inlet Pusey & Jones design, 30" high, equipped with motor driven direct-connected perforated distributor roll, adjustable device for leveling the sheet, adjustable deckle in-plates, gauge glass and necessary supporting frames.

3—Washer Cylinders, 42" diameter x 84" face.

24—Brass Table Rolls, 7" diameter x 196" face, equipped with Timken Roller Bearings #375-372.

Address Box 49-277, care Paper Trade Journal. J-2

FOR SALE

Small cylinder Tissue Mill. 4 tons per 24 hours. Water Power. Ideal one-man Mill.

Address Box No. 49-217
care Paper Trade Journal

J-2

FOR SALE—One 36" Norwood Friction Calender, Belt driven, including 30 h.p. D.C. Motor. Address Box 49-253 care Paper Trade Journal. J-2

STOCK, FIXTURES & ACCOUNTS of southern coarse paper house for sale at replacement cost. Address Box 49-270 care Paper Trade Journal. J-30

FOR SALE: 1—72" Type 10—Cameron Slitter and Rewinder. 20 sets of cutters. 2" and 3" collapsible and 3" diameter round core shafts. 15 H.P. A. C., 3 phase, 60 cycle, motor. Water cooled rewind. Latest type machine. Immediate delivery. For further particulars address Box #49-269 care Paper Trade Journal. J-2

FOR SALE—Mill Heavy Duty Ream Wrapping and Sealing Machine. Complete. Good operating condition. Reasonably priced. Contact BUTLER PAPER CORPORATION, 223 West Monroe Street, Chicago, Ill. J-2

FOR SALE—106" Beloit 4 Ply Board Paster with 72" cut-off knife or with larger knife if necessary. Priced right for immediate sale. Address Box 49-246 care Paper Trade Journal. TF

FOR SALE—52" Slitter-Rewinder manufactured by Cannard. Score-cutter. Rebuilt. Ran day and night until recently when it was replaced by larger machine. Exceptional value at $2,500.00. THE PAPERCRAFT CORPORATION, Paper Square, Pittsburgh, Pennsylvania. TF

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon, Laboratory Coating and Treating Machines. New improvement. MAYER MACHINE COMPANY, Inc., 1313 Buffalo Road, Rochester 11, N. Y. TF

FOR SALE—60" Clark Sheeter complete with Erie Layboy, 12 roll backstand and motor. Good operating condition. Reasonably priced. Contact BUTLER PAPER CORPORATION, 223 W. Monroe Street, Chicago, Ill. J-2

FOR SALE—One 60 inch L.H., nine roll Holyoke Calender. Complete with cotton and chilled iron rolls. In good condition including standard arrangement of high and low speed shafts. Has been in operation until just recently. Address Box 49-257 care Paper Trade Journal. J-2

BARGAINS FOR CASH

23—Dryers, 36 x 72, with frames, gears, bearings, steam joints, operated until last week, pressures 40 lbs. steam. $3000.00 loaded cars.

1—Pusey and Jones Rewinder, two drum, 122", with drive and slitters. Must be seen for value appraisal. $3250.00.

1—Dilts 1800 lb. Cast-iron tub beater. High speed. Roll, 60" diam. x 56" face. $1000.00, loaded cars.

1—Valley Iron Works 8 plate flat screen, with motor drive on cams and also separate motor on scrapers, with plates, 0.022 cut. $300.00.

1—Beloit 8 x 18 triplex pump with 10 HP motor, $600.00.

1—Shartle 10 x 20 with 15 HP motor. $550.00.

1—Shartle 10 x 20 single with motor. Pump late type. $275.00.

1—Bird Save-all, size 6A, anti-friction bearings, rebuilt, motor, cylinder size, 43 x 125, with motor.

1—Bird Save-all, size 5A, new backing plates, rubber-covered couch, automatic float and shower, drive and motor. A real bargain. Size, 43 x 100.

1—Hudson-Sharp Embossing Machine, 45". Complete with roll stands, unwind stands, embossing rolls, drive and motor. Bargain.

1—Mammoth Type D Jordan with ⅜ double filling for kraft.

1—Appleton 10 plate flat screen with roller shoes, motor.

1—Haug Refiner, size 3, type 3, 8 rolls, anti-friction bearings.

1—Beloit two drum reel, 132", will wind 78" diameter rolls. Also one 104" Low priced for liquidation.

34—Dryers, 48 x 126, balanced, with bearings, rope sheaves, packing glands. Reduced for removal.

PAPER MILL STORES

P. O. BOX 40 **PHONE 3694-J** **LOCKPORT, NEW YORK**

J-2

FOR SALE

1—102" Cameron Type 18—60" diameter rewind capacity.

BARKERS
1—5' Carthage Disc Barker

BEATERS
1—800 lb Beater—iron tub.

BEATERS (Laboratory)
2—Dilts Iron Tub Laboratory Beaters. Beater rolls 14" diameter x 10½" face, including motors.

BRASS FELT ROLLS
9—4" diameter x 140" face (with bearings).

BREAST ROLLS
1—100" x 14"
3—114" x 14"
1—120" x 14"

CALENDER STACK
1—72" 5 roll Calendar Stack.

CHIPPERS
2—96" Murray 4 knife Chippers.

CYLINDER MOULDS
1—36" diameter x 80" face.
1—30" diameter x 72" face.
1—36" diameter x 79" face.

DECKER
1—Decker—48" diameter x 84" cylinder mold

DRIVES
2—#4 Reeves Drives.
1—#2 Reeves Drive.
1—Smith & Winchester mortise gear Drive.
1—Foote—7½ h.p. Speed Reducer (Ratio 240 to 1)
2—Smith & Winchester Mortise Gear Drives with 26" diameter clutches—Ratio 8 to 1.

DRIVES (Angle)
1—General Machine Company 16 : 1.
1—Philadelphia 50:1 — 1 h.p. — 1200 r.p.m.
2—Philadelphia 21½:1 — 3 h.p. — 1200 r.p.m.

V-BELT DRIVE
1—81½" diameter x 7½" face, 5 groove
1—16½" diameter x 7½" face, 5 groove (With clutch).

DRYERS
30—36" diameter x 102" face.
50—42" diameter x 126" face.
9—36" diameter x 76" face.
1—48" diameter x 91" face.
4—48" diameter x 94" face.
8—25" x 120"(Baby Dryers)
2—36" x 143".
1—24" x 130".

EMBOSSER
1—84" Hudson Sharp Toilet Embosser. Spare engraved roll.

FLAT SCREENS
1—6 plate Shartle Flat Screen.
1—8 plate Packer Type Flat Screen.
2—12 Plate Murray Dunbar Flat Screens.
2—14 plate Sandy Hill. (Never used.)

FRICTION CALENDERS
2—30" Waldron.
2—38" Waldron.
1—54" Waldron.

HYDRAULIC PRESS
1—Watson-Stillman Co. (Platen 24" x 24").

JORDANS
1—Noble & Wood, Pony Monarch, Belt Driven.
2—Noble and Wood—Mammoth Type
1—Emerson Jordan—25 to 30 tons capacity —iron plug including new spare iron plug.

MISCELLANEOUS
1—Caustic Mixer.

MOTORS
2—5 h.p. ball bearing—splash proof motors —3/60/440, 1160 r.p.m.
1—½ h.p. ball bearing—splash proof gear-head motor—3/60/440, 1725 r.p.m.
1—2 h.p. ball bearing—splash proof gearhead motor—3/60/440, 1725 r.p.m.

PRESS ROLLS
Various sizes.

PULLEYS
Various cone and assorted pulleys.

PULP STACKER
1—Link Belt Company Pulp Stacker, 30 ft. conveyor, 2½ ft. wide, self propelled, with motors.

PULPER
1—Jones Pulper. Complete with motor and drive.

PUMPS
2—Weil Pump Co.—100 g.p.m.—100 P.S.I. including 15 h.p. motors (new equipment).
1—Bell & Gossett—300 g.p.m.—120' head—including 15 h.p. motor.
1—Goulds Sump Pump—50 g.p.m.—20' head —including motor.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REEL
1—72" Beloit Reel.

ROLLS
800—Brass tube-steel tube—rubber covered iron rolls—various sizes

ROTARY SCREENS
1—#2 Bird Rotary Screen.
1—#2A Bird Rotary Screen.

SAVEALL
1—Pusey & Jones Saveall. Cylinder mold 42 x 146, anti friction bearings, including rubber covered couch roll.
1—#5 Bird Saveall.

SCREEN PLATES
20 Plates cut .016.
10 Plates cut .068.
Also other sizes and cuts in stock

SHEETER
1—136" Moore & White Sheeter, duplex, with layboy

SLITTERS AND WINDERS
1—208" Cameron—Type 20.
1—84" Cameron—Type 18.
1—102" Cameron—Type 18.
1—72" Cameron—Type 28-8-7-D (shear cut)
1—62" Cameron—Type 10-10-AJ.
1—30" Cameron—Type 24-2L
1—42" Cameron—Type 40-4-B
1—42" Cameron—Type 28-8-7 (shear cut).
1—42" Cameron—Type 24-2A.
1—42" Cameron—Type 9-5.
1—42" Cameron Constant Tension, with pneumatic control.
1—30" Langston.

SQUEEZE ROLLS
2—Rubber Squeeze Rolls, 20¾" diameter x 102" face.

STOCK PUMPS
1—10 x 20 Shartle Duplex.
4—7 x 16 Shartle Duplex.
Numerous other Centrifugal Stock Pumps Advise as to your requirements.

SUCTION BOXES
5—Suction Boxes, 82" drilled face x 6" wide.

SUCTION COUCH ROLL
1—Sandusky 14⅞" diameter x 103" drilled face.

SUCTION PRESS ROLL SHELL (Only)
1—29¾" diameter x 134" drilled face.

TABLE ROLLS
40—Table Rolls 82" face x 3" diameter.

TRIMMER
1—56" Smith & Winchester—Undercut.

TUNNEL DRYERS
2—Proctor & Schwartz Tunnel Dryers, 10 ton and 5 ton capacity.

TURBINE
1—150 h.p. Westinghouse Type C-Gear Turbine (Recently rebuilt).

VACUUM PUMPS
1—#4 Nash Hytor Vacuum Pump.

VAT
1—Iron end Vat only, for decker or saveall, suitable for cylinder mold 36 x 130.

YANKEE DRYERS
1—8' diameter x [illegible]

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.

250 Frelinghuysen Ave. Tel.—Bigelow 3-3720 Newark 5, N. J.

YES! GO WEST! 1949 Fall Meeting TAPPI, Portland, Oregon.

WANTED

WANTED
COMPLETE CYLINDER MACHINE
TO TRIM APPROXIMATELY
90 INCHES BOARD.
Principals only.
Address Box 49-167, care Paper Trade Journal. J-2

MACHINERY WANTED — SACK MACHINE—range ⅛ to ½ barrel sizes. Give full details to condition, model and price. Address Box 49-271 care Paper Trade Journal. J-2

WANTED

WANTED
CAUSTIC SODA
SODA ASH
Top prices paid
Also other chemicals, dyes
SANDERS & SLOAT, INC.
180 Broadway, New York 7, N. Y.
Phone: Beekman 3-5894 J-2

WANTED—Multi-spindle or Revolving Reel, about sixty inch face, or could use two or three reels wtih adjusting screws and bearings, but without stands. Address Box 49-259 care Paper Trade Journal. J-16

WANTED

PAPER MANUFACTURER desire to purchase or invest in converting business of standard paper products. Address Box 49-274 care Paper Trade Journal. TF

WANTED—Brightwood Box Machine. Address Box 49-275 care Paper Trade Journal. TF

WANTED—PAPER—Wish to purchase interest in specialty converting plant within New York Market. Address Box 49-264 care Paper Trade Journal. J-2

WANTED—Several sets of Indenting Rolls, also two cement or flour bag machines, regardless of age or condition. Address Box 49-260 care Paper Trade Journal. J-16

WANTED

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PROPOSALS

FOR FURNISHING

PAPER AND ENVELOPES FOR THE U. S. GOVERNMENT PRINTING OFFICE

SEALED PROPOSALS will be received until 10 a. m., June 6, 1949, in the room of the Joint Committee on Printing, in the Capitol, Washington, D. C., for furnishing the paper for the public printing and binding, and blank paper and plain envelopes for the use of the Government departments and establishments in the District of Columbia, for the terms of 3 months for paper and 6 months for envelopes beginning July 1, 1949, deliveries to be f. o. b. Government Printing Office Warehouse, or warehouse siding, Washington, D. C. The proposals will be opened in the presence of and the award of contracts made by the Joint Committee on Printing to the lowest and best bidders for the interest of the Government whose bids are in conformity with the requirements of the proposals. The Committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part, if, in its opinion, such action would be in the interest of the Government.

Blank proposals containing the instructions, schedule, and specifications may be obtained by addressing John J. Deviny, Public Printer, Washington, D. C.

Contracts will be entered into for supplying the quantities required, whether more or less than the estimates, as provided in paragraph 15 of the proposal for paper and paragraph 13 of the proposal for envelopes.

The approximate estimated quantities set forth in detail in the schedules comprise:

PAPER

1,000,000 pounds newsprint paper; 2,125,000 pounds machine-finish book paper; 100,000 pounds english-finish book paper; 40,000 pounds machine-finish book end paper; 1,800,000 pounds offset book paper; 200,000 pounds antique book paper; 20,000 pounds laid antique book paper; 40,000 pounds water resistant (text) book paper; 500,000 pounds supercalendered book paper; 1,155,000 pounds coated book paper; 2,150,000 pounds mimeograph paper; 700,000 pounds duplicator copy paper; 300,000 pounds U S M O safety writing paper; 8,150,000 pounds writing paper; 180,000 pounds map paper; 250,000 pounds manifold paper; 2,335,000 pounds bond paper; 529,000 pounds ledger paper; 850,000 pounds index paper; 250,000 pounds cover paper; 7,000 sheets cloth lined cover paper; 165,000 pounds manila paper; 60,000 pounds kraft paper; 150,000 sheets gummed paper; 10,000 pounds blotting paper; 120,000 pounds tag board; 50,000 sheets railroad board; 260,000 pounds wood cardboard; 50,000 pounds tan board; 6,150,000 pounds postal card paper; 40,000 sheets pressboard; 200,000 pounds newsboard; 60,000 pounds binder's board; 40,000 pounds chestnut cover board.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

ENVELOPES

The approximate estimated quantities set forth in detail in the schedule comprise:

15,150,000 Kraft; 3,850,000 Writing, Chemical Wood, white and colored; 123,000 100% Writing, White; 437,000 25% Bond, White; 270,000 100% Bond, White.

By direction of the Joint Committee on Printing.

JOHN J. DEVINY,
Public Printer.

WASHINGTON, D. C.,
May 16, 1949. J-2

GOVERNMENT BIDS

PROPOSALS FOR THE SALE OF UNSORTED WASTE PAPER.

U. S. GOVERNMENT PRINTING OFFICE,
WASHINGTON, D. C., *May 25, 1949.*

Sealed proposals will be received at this office until 10 o'clock a. m., June 13, 1949, for the sale of Unsorted Waste Paper which may accumulate at the Government Printing Office during the six months beginning July 1, 1949. The right to reject any and all bids and to waive defects is reserved. Detailed specifications of the estimated quantities to be sold, accompanied by blank proposals and giving regulations with which bidders must comply, may be obtained by addressing

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150	G.E.	S.C.	695	KT562Y
150	West.	S.C.	500	CS
125	West.	Syn.	277	
120	Cr. Wh.	S.R.	290	
100	G.E.	S.R.	450	I M
100	Al.Ch.	S.R.	580	
75	West.	S.C.	865	MS
60	West.	S.C.	1160	CS505
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10	West.	S.C.	870	CS464C
10(8)	West.	S.C.	1200	CS370C
7½	Comm.	S.C.	865	P178
7½	West.	S.C.	1440	CS254Y
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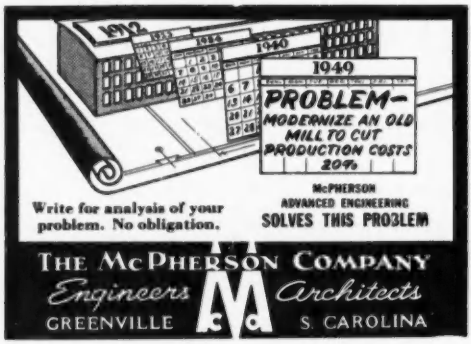

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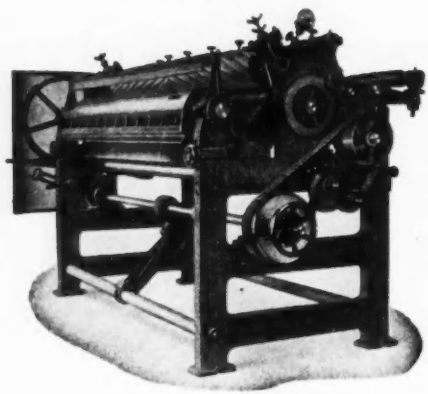

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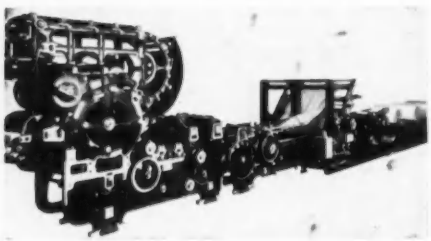

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Williams-Gray Co.

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Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
Roderick O'Donoghue
Shartle Brothers Machine Co

Deinking Chemicals
Adell Chemical Company
E. I. Du Pont De Nemours & Co., Inc.
General Dyestuff Corp.
Kinsley Chemical Co.
Midwest-Fulton Machine Co.
Monsanto Chemical Company
Philadelphia Quartz Co.

Densometers
W. & L. E. Gurley

Design Construction
Ebasco Services

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Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Philadelphia Quartz Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Dewaxing Chemicals
Adell Chemical Company
General Dyestuff Corp.
Nopco Chemical Co.

Digesters
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The Biggs Boiler Works Co.
Combustion Engrg. Co., Inc.
Foster Wheeler Corp.
Lukenweld
Pusey & Jones Corp.

Dirtee
Bird Machine Co.

Dispersing Agents
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Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.

Doctors
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Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Doctor Blades
Bird Machine Company
Black-Clawson Company
Lodding Engrg. Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Driers
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Downingtown Mfg. Co.
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Hardinge Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J
J. J. Ross Company
Red-Ray Mfg. Co., Inc.
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
The Youngstown Welding & Engrg. Co.

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Appleton Machine Co.
Bird Machine Co.
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Dilts Machine Works
Downingtown Mfg. Co.
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Farrel-Birmingham Co.
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Gibbs-Brower Company, Inc.
Rodney Hunt Machine Co.
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J. J. Ross Company
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Syco Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

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E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

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M. W. Jenkins Sons, Inc.

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Ciba Company
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Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.
C. K. Williams & Co.
Witco Chemical Co.

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Gibbs-Brower Company, Inc.
The Midvale Company
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.

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General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Enzymes
Rohm & Haas Co.

Evaporators
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Foster Wheeler Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

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Mount Hope Machinery Co.

Fans
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

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Merrick Scale Mfg. Co.
Leeds & Northrup

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Asten-Hill Mfg. Co.
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Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

Felt Cleaners
Adell Chemical Company
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Nopco Chemical Co.

Felt Conditioners
Bird Machine Co.

Felt Guides
Black-Clawson Co.
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

Fillers
American Cyanamid Company, Industrial Chemicals Division
W. H. Loomis Talc Corp.
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Witco Chemical Co.

Filters
Bird Machine Company
Cochrane Corp.
Hardinge Company, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Walworth Company

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Crane Company
The Kuhns Bros. Co.
Phoenix Products Co.
Walworth Company

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Ajax Flexible Coupling Co.

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Norton Co.

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Lukens Steel Co.

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Oliver United Filters, Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Freeness Testers
Testing Machines, Inc.

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De Laval Steam Turbine Co.
Downingtown Mfg. Co.
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Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
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Smith & Winchester Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Corp.

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Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

Grinding Wheels
Norton Company

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The Moore & White Co.
Mount Hope Machinery Co.
Bound Brook Engrg. Co.

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Stein-Hall Co., Inc.

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Babcock & Wilcox Co.
Lukens Steel Company

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Foster Wheeler Corp.
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Stickle Steam Specialties Co.
Westinghouse Electric Corp.

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Armstrong Machine Works
Cochrane Corp.
Davis Engrg. Corp.
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General Electric Co.
Leeds & Northrup
Minneapolis-Honeywell Regulator Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

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The Bristol Company
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The Foxboro Company
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Leeds & Northrup Company
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B. F. Perkins & Son
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Taylor Instrument Cos.
Testing Machines, Inc.
Williams Apparatus Co., Inc.

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Perfecting Service Corp.

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Bahr Brothers Mfg. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

Knives
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Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
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Taylor Stiles & Co.
Valley Iron Works Co.

Knot Boring Machines
DeZurik Shower Company

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Timber Engrg. Co.

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The Biggs Boiler Works Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.

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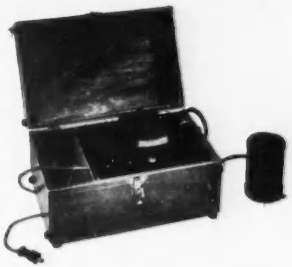

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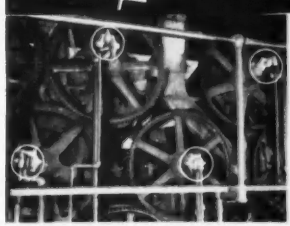

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1000	Al. Chlrs.	ANY	2300	240
800	Westghse.	C.W.	6600	507
600	Gen. Elec.	I.M.	440	350
500	Al. Chlrs.	ANY	2300	514
400	Gen. Elec.	I.M.	2300	900
300	Westghse.	C.W.	2300	367
250	Cr. Wh.	——	440	900
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200	Westghse.	C.S.	440	720
150	Gen. Elec.	K.T.	2300	600
100	Al. Chlrs.	A.R.	440	514
75	Al. Chlrs.	A.N.	440	1200
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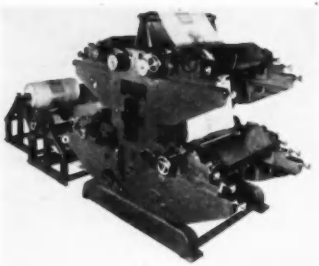

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Reliance Electric & Engrg. Co.

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The International Nickel Co.

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Link Belt Company

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The Moore & White Co.
Perfecting Service Corp.
Shartle Brothers Machine Co.

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The Sandy Hill Iron & Brass Works
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Smith & Winchester Mfg. Co.

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The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

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Dietz Machine Works
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Hudson Sharp Machine Co.
Langston Co., Samuel M.
Suburban Machine Co.

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Dilts Machine Wks.
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Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

Penstocks
The Biggs Boiler Works Co.

Perforated Metal
Allis-Chalmers Mfg. Co.

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Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Michigan Pipe Co.
Michigan Steel Casting Co.
National Tube Co.
Walworth Company
Youngstown Welding & Engrg. Co.

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The American Rolling Mill Co.
Crane Company
Ladish Company
Michigan Steel Casting Co.
Phoenix Products Co.
Walworth Co.

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Monsanto Chemical Company
Rohm & Haas Co.

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Perkins & Son, Inc., B. F.

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Babcock & Wilcox Co.
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J. O. Ross Engrg. Corp.
Lukenweld
Lukens Steel Company
Timken Roller Bearing Co.

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Shartle Brothers Machine Co.

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Testing Machines, Inc.

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Shartle Brothers Machine Co.
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Williams Apparatus Co.

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Record Fdy. & Mach. Co.
Shartle Bros. Mach. Co.

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Bauer Brothers Co.
Dilts Machine Works
Midwest-Fulton Machine Co.
Shartle Brothers Machine Co.

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Elof Hansson, Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.

Perkins-Goodwin Co.
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Pulp and Paper Trading Co.
Pulp Sales Corp.

Pulpstones
Norton Company

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Black-Clawson Company
Buffalo Pumps, Inc.
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DeLaval Steam Turbine Co.
Dorr Company
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Johnson Corp.
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Nash Engineering Co.
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Warren Steam Pump Company

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The Kinsley Chemical Company
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Rohm & Haas Co.

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The Dorr Company

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Ross Engineering Corp., J. O
Valley Iron Works Co.

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Downingtown Mfg. Co.
Hudson Sharp Machine Co.
Moore & White Co.
Paper Converting Mch. Co
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg Co.

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Bauer Brothers Co.
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Midwest-Fulton Machine Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co
Sutherland Refiner Corp.
Valley Iron Works

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Armstrong Machine Works
Bird Machine Company
The Bristol Company
DeZurik Shower Company
The Foxboro Company
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
Midwest-Fulton Machine Co.
Minneapolis-Honeywell Regulator Co.
National Technical Laboratories
Shartle Brothers
Stickle Steam Specialties Co.
Taylor Instrument Companies
Wallace & Tiernan

Research Chemists
Timber Engrg. Co.

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The Dow Chemical Company
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Rohm & Haas Co., Resinous Products Div.

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Downingtown Mfg. Co
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Farrel-Birmingham Co.
Gibbs-Brower Company, Inc
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The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
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Pusey & Jones Corp.
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Ross Paper Machy. Co.
Rodney Hunt Machine Co.
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Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co
Valley Iron Works Co.
Waldron Corp., John
The Youngstown Welding & Engrg. Co.

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The Goodyear Tire & Rubber Company
Edward J. McBride
Stowe-Woodward, Inc.

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Moore & White Co.
Potdevin Machine Co.
John Waldron Corp.
H. G. Weber & Co., Inc.

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The Moore & White Co.

Rotary Boilers
The Biggs Boiler Works Co

Rotary Steam Joints
Johnson Corp.
The Moore & White Co.
Perfecting Service Corp.

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The Goodyear Tire & Rubber Company

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Noble & Wood Machine Co
Potdevin Machine Co.
Shartle Brothers Machine Co
Waldron Corp., John
Weber, Herman G.

Savealls
Bird Machine Company
Hardinge Company

Scales
Fairbanks, Morse & Co.
Merrick Scale Mfg. Co
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

Screen Plates
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.

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American Paper Mchy. & Engrg. Works, Inc.
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

Sheet Machines
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Suburban Machine Co.
Valley Iron Works Co.

Shower Pipes
Bird Machine Company
DeZurik Shower Company
Downingtown Mfg. Co.
Moore & White Co.
Sandusky Fdy. & Mch. Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

Shredders
Bauer Brothers Co.
Carthage Machine Co.
Gibbs Brower Company, Inc.

Sizing
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Black-Clawson Company
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Philadelphia Quartz Co.
Stein-Hall Co., Inc.

Sizing Tester
W. & L. E. Gurley

Slime Control
W. A. Cleary Corp.
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
National Aluminate Corp.
Rohm & Haas Co.

Slitters
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc
Hamblet Machine Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Machinery & Prod. Engrg. Corp
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John

Smoke Stacks
William Allen Son's Company
The Biggs Boiler Works Co.

Splicing Tissue
Williams-Gray Co.

Softness-Stiffness Tester
W. & L. E. Gurley
Testing Machines, Inc.

Soluble Oils
Adell Chemical Company
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

Solvents
Adell Chemical Company

Stainless Steel
American Cast Iron Pipe Co.
Armco Steel Corp.
Michigan Steel Casting Co.
The Midvale Company
U. S. Steel Corp.

Starch
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Clinton Industries, Inc.
The Hubinger Co.
National Starch Products Inc.
Stein-Hall Co., Inc.

Steam Joints
The Moore & White Co.

Steam Specialties
Babcock & Wilcox Co.
Cochrane Corp.
Combustion Engrg. Co., Inc
Davis Engrg. Corp.
Jonnson Corp.
Midwest-Fulton Machine Co.
Perfecting Service Corp.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co

Steel
Allegheny Ludlum Steel Corp.
Armco Steel Corp.
Carnegie Illinois Steel Co.
Lukens Steel Company
Midvale Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

Steel, Clad
Babcock & Wilcox Co.
Lukens Steel Company

Steel Tanks
William Allen Son's Company
The Biggs Boiler Works Co.

Strapping & Strapping Machines
The Stanley Works

Stuff Chests
Downingtown Mfg. Co.
E. D. Jones & Sons Co
Midwest-Fulton Machine Co.
Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Suction Boxes
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Suction Unit
Paper & Industrial Appliances, Inc.

Sulphur
American Cyanamid Company, Industrial Chemicals Division
Texas Gulf Sulphur Co.
Witco Chemical Company

Sulphur Burners
Valley Iron Works Co.

Sulphur Dioxide
American Cyanamid Co., Calco Chemical Div.
Ansul Chemical Company
Virginia Smelting Co.

Supercalenders
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

Synthetic Latices
American Anode Div., The B. F. Goodrich Chem. Co.
The Goodyear Tire & Rubber Company
Nopco Chemical Co.

Tachometers
The Brown Instrument Co.

Talc
American Cyanamid Company, Industrial Chemicals Division
W. H. Loomis Talc Corp.

Tanks
William Allen Son's Company

WHERE TO BUY . . .

The Biggs Boiler Works Co.
Cochrane Corp.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
B. F. Perkins & Son, Inc.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Waldron Corp., John

Tearing Testers
Testing Machines, Inc.

Tensile Testers
B. F. Perkins & Son, Inc.
Testing Machines, Inc.

Thickeners, Deckers and Savealls
The Appleton Machine Co.
Bird Machine Company
Bulkley, Dunton Pulp Co., Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Hardinge Co., Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Oliver United Filters, Inc.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Timber Roof Truss Designs
Timber Engrg. Co.

Titanium
American Cyanamid Co., Calco Chemical Div.
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

Tools
Ingersoll-Rand Co.
The Stanley Works
Walworth Company

Tractor Shovels
Frank G. Hough Co.

Tractors & Trucks
Frank G. Hough Co.
Towmotor Corp.
Clark Equipt. Co., Clark Tractor Div.

Transmissions
Link Belt Company

Traps
Armstrong Machine Works
Cochrane Corp.
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

Tubes
Babcock & Wilcox Co.
National Tube Co.

Tubing, Mechanical
National Tube Co.

Tubs
Rodney Hunt Machine Co.
Shartle Brothers
Valley Iron Works Co.

Turbines
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.

Turpentine Recovery
Foster Wheeler Corp.

Used Equipment
Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machy. Corp.
Shartle Brothers Machine Co.
Suburban Machine Co.

Valves
Askania Regulator Co.
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
Crane Company
Dilts Machine Works
The Foxboro Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
William Powell Co.
Record Fdy. & Mch. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies
Trimbey Mach. Wks.
Valley Iron Works Co.
Walworth Company

Washers
Bird Machine Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Waste Treating Equipment
Alhydro, Inc.
The Dorr Company

Water Conditioning
Alhydro, Inc.
Calgon, Inc.
Cochrane Corp.
General Dyestuff Corp.
National Aluminate Corp.

Water Dispersions
Alhydro, Inc.
American Anode, Inc.
Rohm & Haas Co., Resinous Products Div.

Waxes
Hercules Powder Co.

Waxing Machinery
Black-Clawson Co.
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

Welding Equipment
General Electric Company
Walworth Company

Wet Machines
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Pusey & Jones Company
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

Wetting Agents
American Cyanamid Company, Industrial Chemicals Division
Adell Chemical Company
General Dyestuff Corp.
Hercules Powder Co.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

White Water Heaters, Automatic self cleaning type
Davis Engineering Corp.

Winders and Rewinders
The Appleton Machine Co.
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Machinery & Prod. Engrg. Corp.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Waldron Corp., John

Wire Brushes
M. W. Jenkins Sons Inc.

Wires
Appleton Wire Works
Bulkley, Dunton Pulp Co., Inc.
International Wire Works
Lindsay Wire Weaving Co.
Williams-Gray Co.

Wire Brushes
Williams-Gray Co.

Wood Splitters
The Appleton Machine Co.
Carthage Machine Co.

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How to make a doctor live longer

TYPICAL SOAP FLAKER ROLL *on which doctor blades of rugged, rustproof "K" Monel serve dependably, and require infrequent regrinds.*

There may be a tip for pulp and paper mill operators in the remarkable performance of this doctor blade.

It's used in the manufacture of soap flakes, and operates against a heated cast iron dryer roll. Blades previously used had to be honed every hour, and reground every three days.

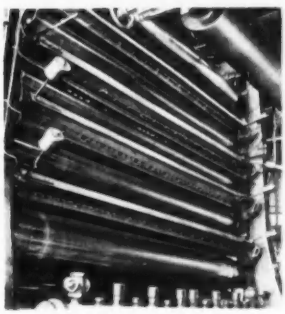
The present "K" Monel blade runs 24 hours without honing, goes 27 days between regrinds, and lasts *nine times as long.*

A rustproof nickel alloy, "K" Monel has all the strength and hardness required for tough jobs in pulp and paper mills, too. It is especially suited for creping heavy paper and specialties, for use against dryer and flaker rolls, or hard rubber covered rolls.

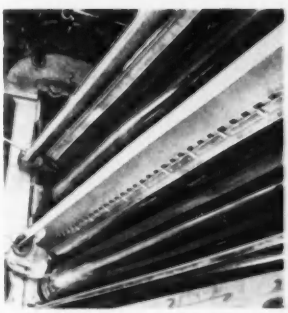
For less severe services against calender rolls, or against brass, bronze and chrome rolls, use regular Monel . Although it does not have "K" Monel's *extra* strength and hardness, Monel is highly satisfactory on wet machines and filters, color and ink scrapers, and in the finishing of wallpapers.

Both Monel and "K" Monel are stronger and tougher than structural steel. Both show stubborn resistance to wear and corrosion. Contact edges of doctor blades remain smooth and even, thus protecting the surface of the roll.

When corrosion and wear strangle the efficiency of your equipment, put Monel or "K" Monel on the job. They'll help you increase output, eliminate a lot of maintenance work... and cut costs.



MADE FROM FULL HARD *Monel strip, these doctors speed output of a 119" Fourdrinier.*



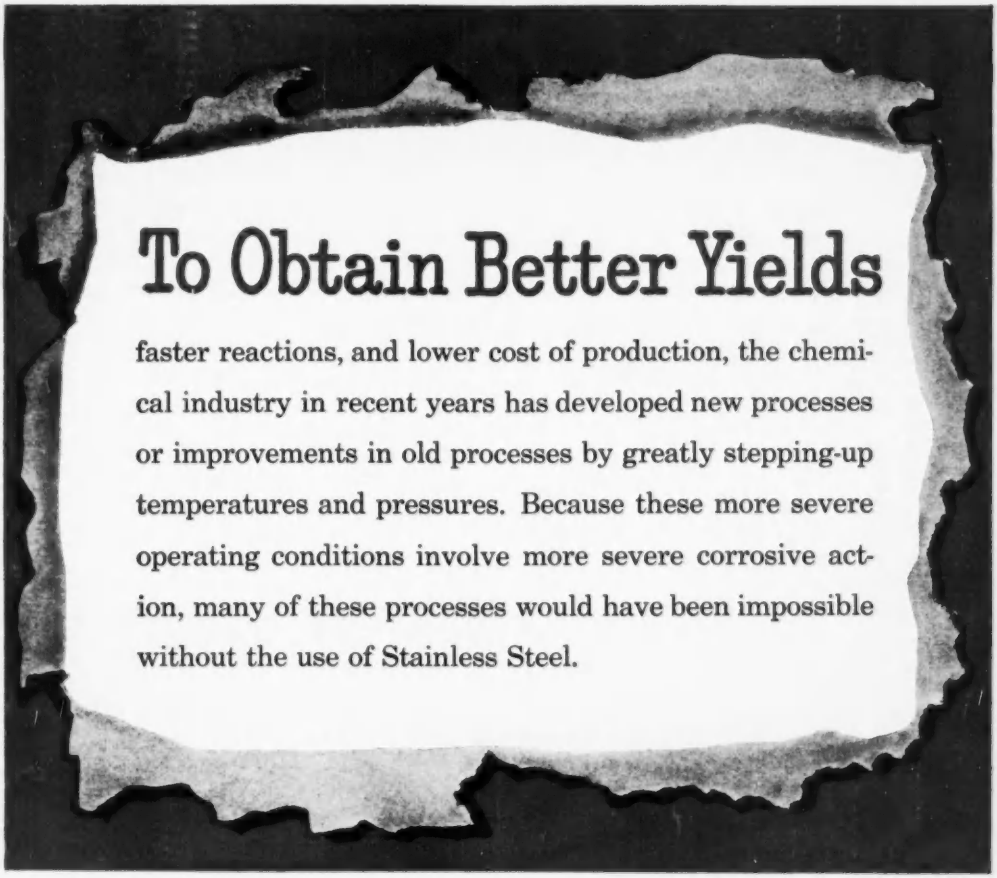
MONEL DOCTORS *on chilled cast iron calender rolls do not score or mark the roll surface. Blades were manufactured by the* Ohio Knife Co., *Cincinnati, Ohio.*

"K" MONEL
MONEL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK 5, N. Y.

NICKEL (INCO) **ALLOYS**

MONEL • "K" MONEL • "S" MONEL • "R" MONEL • "KR" MONEL • INCONEL • NICKEL • "L" NICKEL • "Z" NICKEL


To Obtain Better Yields
faster reactions, and lower cost of production, the chemical industry in recent years has developed new processes or improvements in old processes by greatly stepping-up temperatures and pressures. Because these more severe operating conditions involve more severe corrosive action, many of these processes would have been impossible without the use of Stainless Steel.

THAT is why today the amount of Stainless Steel going into chemical plants is many, many times greater than it was ten years ago.

The superior ability of this group of corrosion-resisting and heat-resisting steels to meet a wide variety of corrosive conditions is being more and more widely recognized. In fact, when it comes to critical applications involving high temperature—where resistance to oxidation and retention of strength are imperative—Stainless Steel is in a class apart.

In U·S·S Stainless Steels we offer you a *complete* range of perfected, service-tested Chromium and Chromium Nickel Steels in a wide variety of forms, sizes and finishes. When you plan to use them, ask for the cooperation of our engineers who are specialists in Stainless and will gladly give you the benefit of their experience to help you obtain optimum results at minimum cost.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO · CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO · NATIONAL TUBE COMPANY, PITTSBURGH · TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

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UNITED STATES STEEL